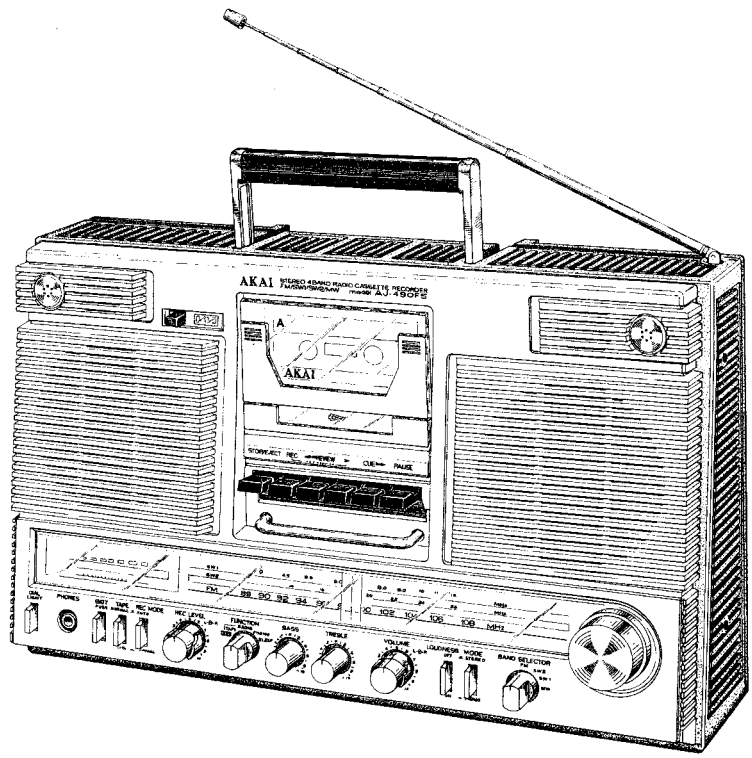
AKAI SERVICE MANUAL



AJ-490FS/FL

4 BAND STEREO RADIO CASSETTE RECORDER

MODEL **AJ-490FS/FL**

4 BAND STEREO RADIO CASSETTE RECORDER

MODEL AJ-490FS/FL

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SECTION 1

SERVICE MANUAL

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I. TECHNICAL DATA

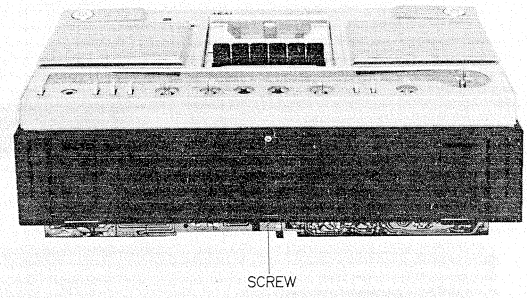
TYPE		4 Band Stereo Radio Cassette Recorder
FREQUENCY RANGES	AJ-490FS	FM: 87.6–108MHz MW: 525–1,605kHz SW1: 3.9–12MHz SW2: 12–26MHz
	AJ-490FL	FM: 87.6–107MHz LW: 150–290kHz MW: 525–1,605kHz SW: 4.9–12MHz
ANTENNAS		Rod Antenna for FM, SW and SW2 Bands Built in Bar Antenna for LW, MW and SW1 Bands External Antenna Terminal for all Bands
SPEAKER		2 Way, 4 Speaker Woofer: 12 cm x 2 Tweeter: 4 cm x 2
POWER OUTPUT		3.8W x 2
TAPE		Philips Type Cassette Tape
TRACK SYSTEM		4 Track 2 Channel Stereo System
MONITOR SYSTEM		Variable Monitor System
F.F. & REWIND TIME		Within 120 sec (Using a C-60 Cassette Tape)
WOW & FLUTTER		0.1% (WRMS)
POWER REQUIREMENTS		120V/60Hz for Canada 220V/50Hz for Europe except UK 240V/50Hz for UK & Australia 110-120V/220-240V, 50/60Hz for Other Countries
POWER CONSUMPTION		20W
DIMENSIONS		440 x 260 x 162mm (W x H x D)
WEIGHT		5 kg

* For improvement purposes, specifications and design are subject to change without notice.

II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

3



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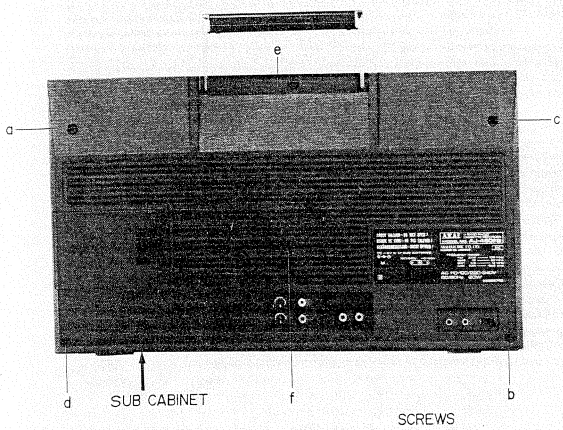

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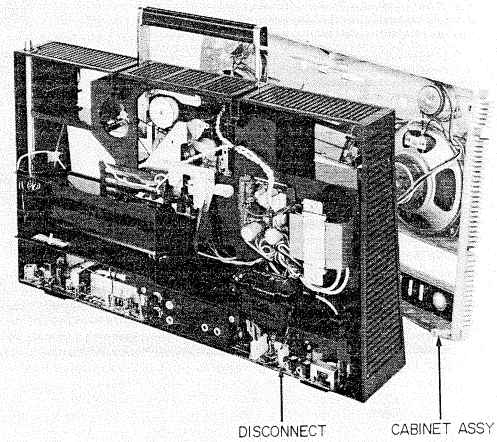

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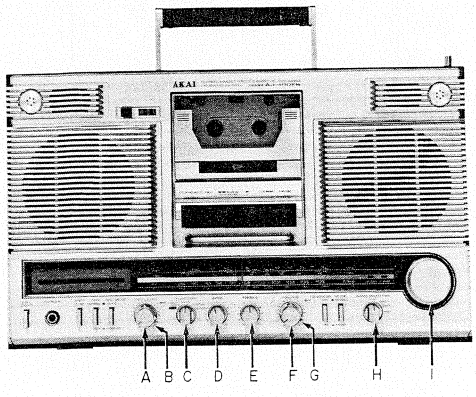

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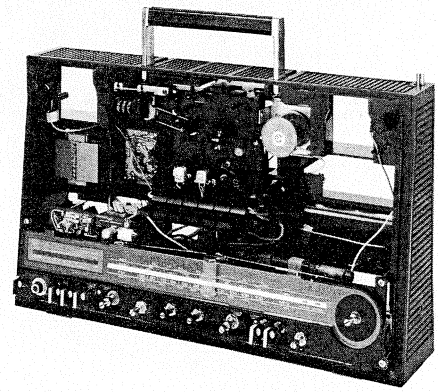
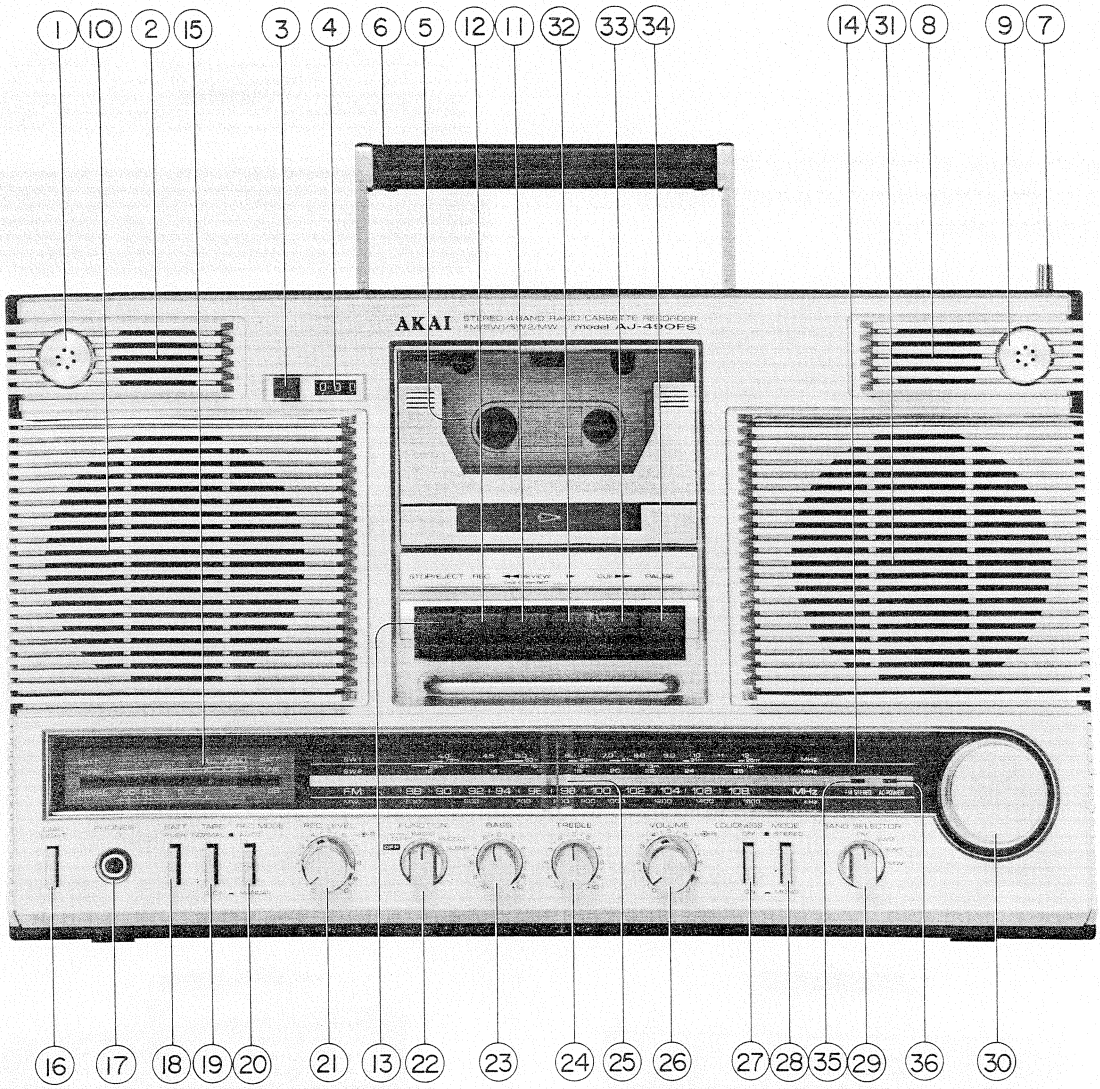


III. CONTROLS



1. BUILT-IN MICROPHONE (Left)
2. LEFT TWEETER
3. RESET BUTTON
4. TAPE COUNTER
5. CASSETTE RECEPTACLE
6. CARRYING HANDLE
7. ROD ANTENNA
8. RIGHT TWEETER
9. BUILT-IN MICROPHONE (Right)
10. LEFT WOOFER
11. REVIEW/REWIND KEY (◀◀)
12. RECORDING KEY (REC)
13. STOP/EJECT KEY
14. TUNING DIAL SCALE
15. LED INDICATORS (Battery check, Tuning, Recording and Playback levels)
16. DIAL LIGHT BUTTON
17. HEAD PHONES JACK
18. BATTERY CHECK BUTTON
19. TAPE SELECTOR SWITCH
20. RECORDING MODE SWITCH
21. LEFT AND RIGHT RECORDING LEVEL CONTROLS
22. FUNCTION SELECTOR
23. BASS CONTROL

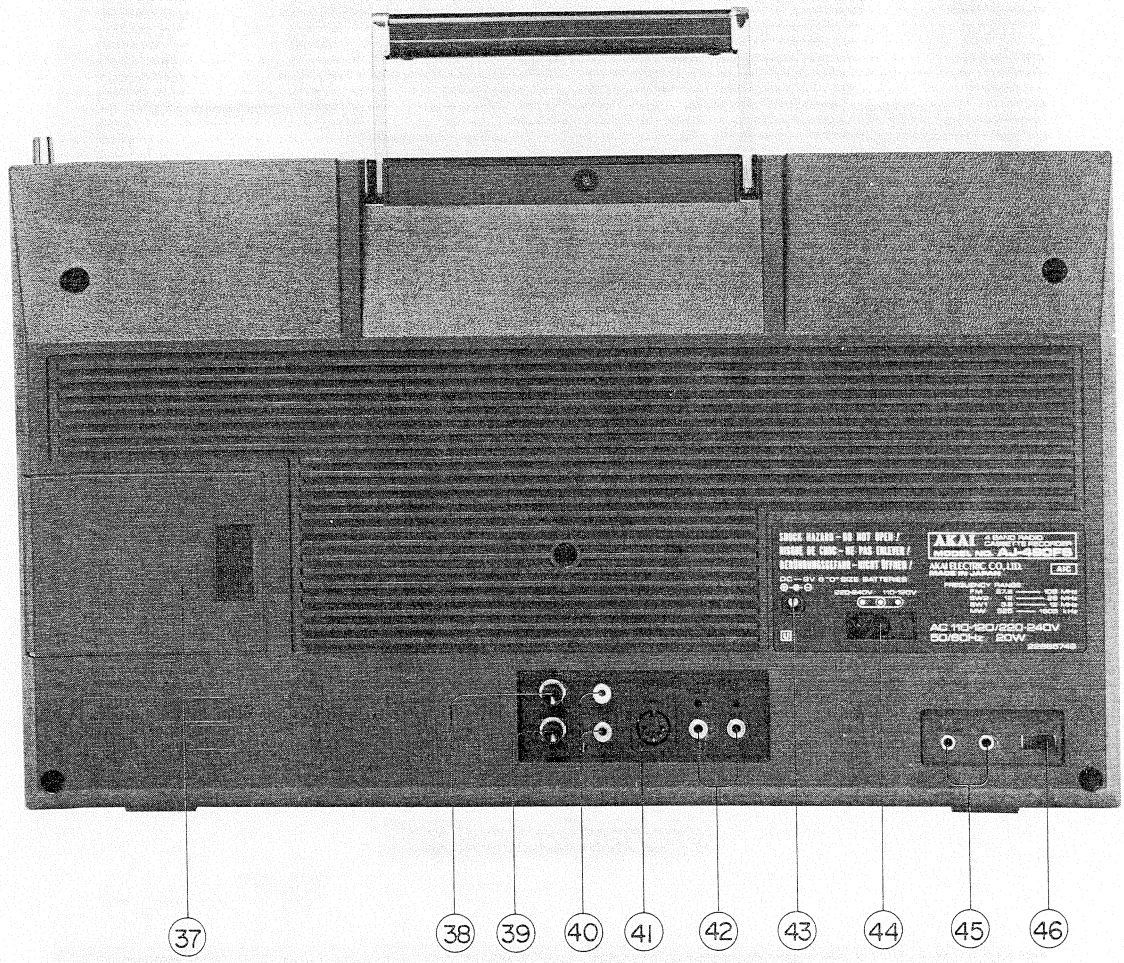


Fig. 1 Controls

24. TREBLE CONTROL
25. DIAL INDICATOR
26. LEFT AND RIGHT VOLUME CONTROLS
27. LOUDNESS SWITCH
28. MODE SWITCH
29. BAND SELECTOR
30. TUNING KNOB
31. RIGHT WOOFER
32. PLAY KEY (▶)
33. CUE/FAST FORWARD KEY (▶▶)
34. PAUSE KEY
35. FM STEREO INDICATOR LAMP
36. AC POWER INDICATOR LAMP
37. BATTERY COMPARTMENT
38. ANT TERMINAL
39. GROUND TERMINAL
40. PHONO JACKS
41. LINE IN/OUT SOCKET (DIN)
42. EXT MIC JACKS
43. EXT PWR JACK
44. AC INLET
45. EXTERNAL SPEAKER JACKS
46. BEAT CUT SWITCH

IV. PRINCIPAL PARTS LOCATION

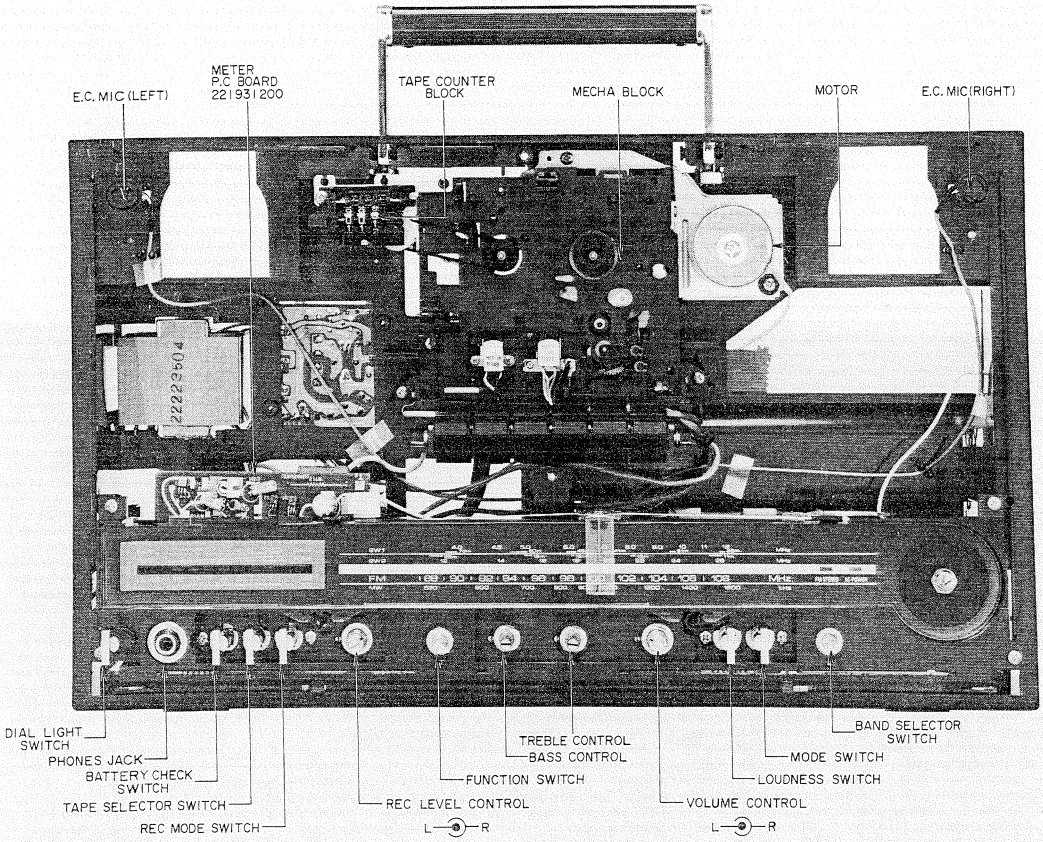


Fig. 2 Front View

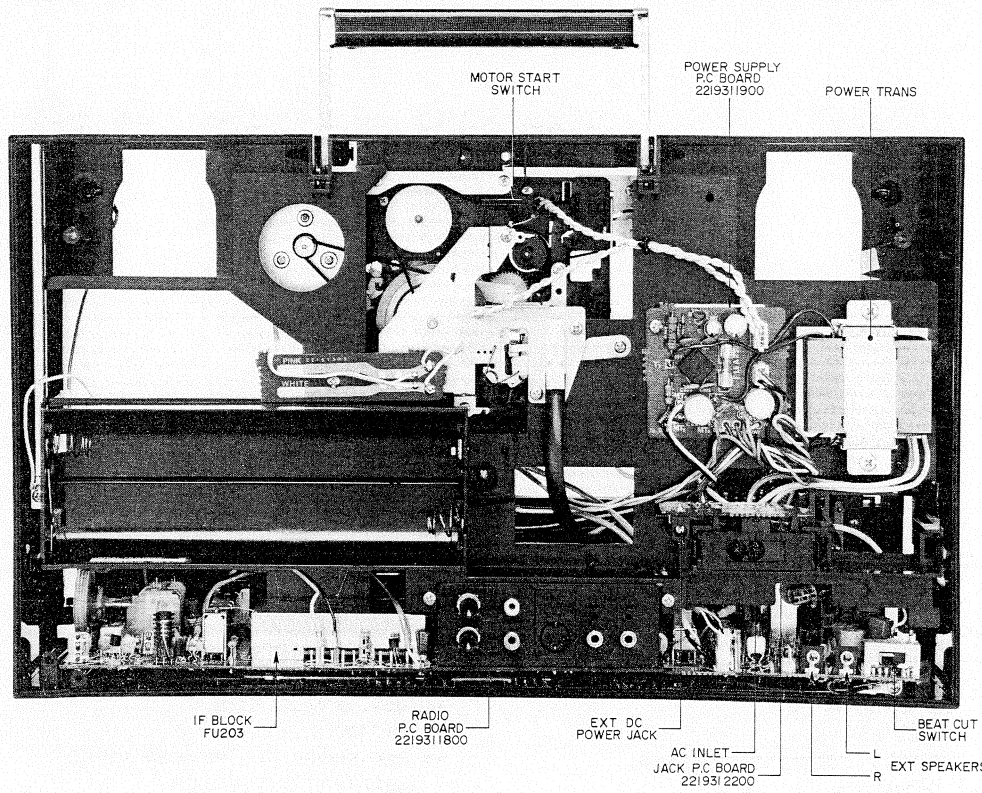


Fig. 3 Rear View

V. VOLTAGE AND CYCLE CONVERSION

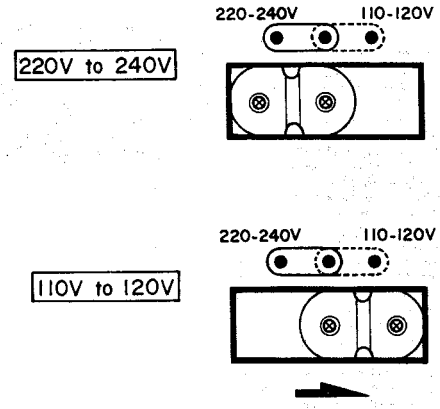


Fig. 4 Voltage Conversion (U/T only)

1. VOLTAGE CONVERSION

1) U/T Model (Refer to Fig. 4)

Voltage conversion to suit the different regions is carried out by the way the AC plug is inserted into the AC inlet at the rear.

The AC inlet is normally at 220-240V so please leave as it is for regions where the voltage is 220V to 240V.

If the region's voltage is 110V to 120V slide the AC plug to the right while slightly inserted and then fully insert into the new position. There is no need to change the fuse.

2) Models Other Than U/T

Voltage conversion is impossible.

2. CYCLE CONVERSION

Cycle conversion is not necessary because a DC motor is used.

VI. MECHANISM AND HEAD ADJUSTMENT

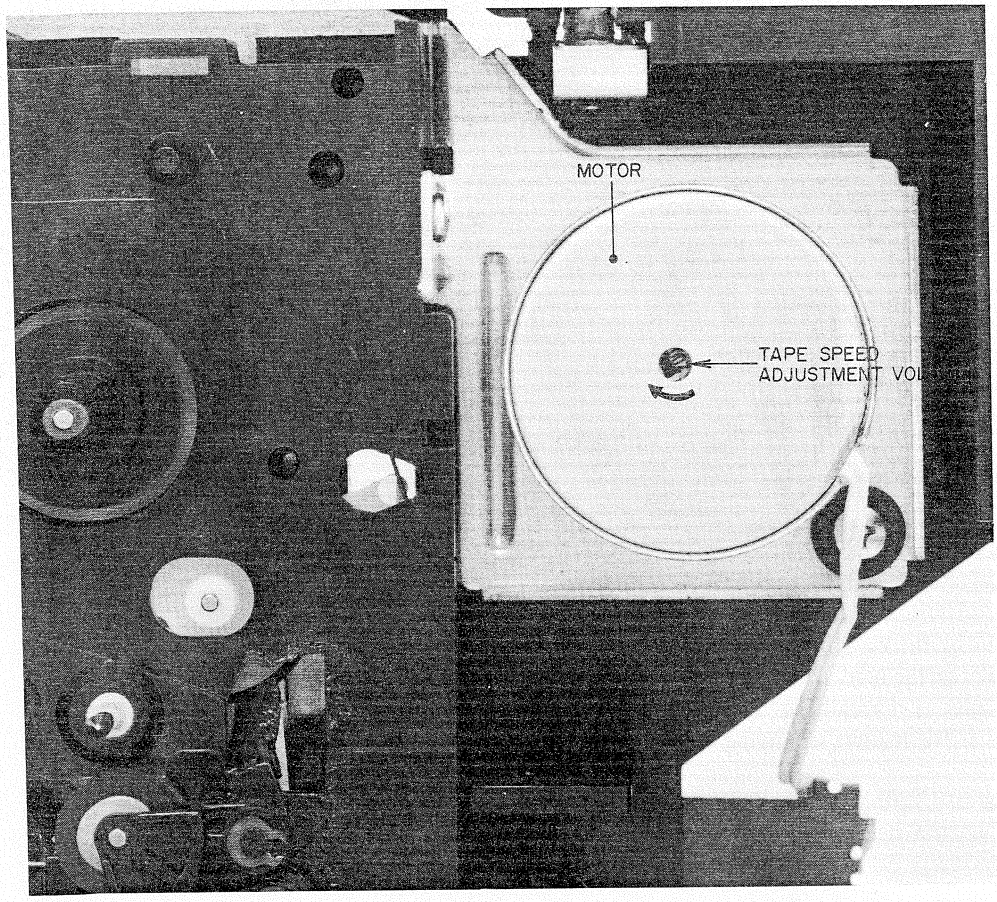
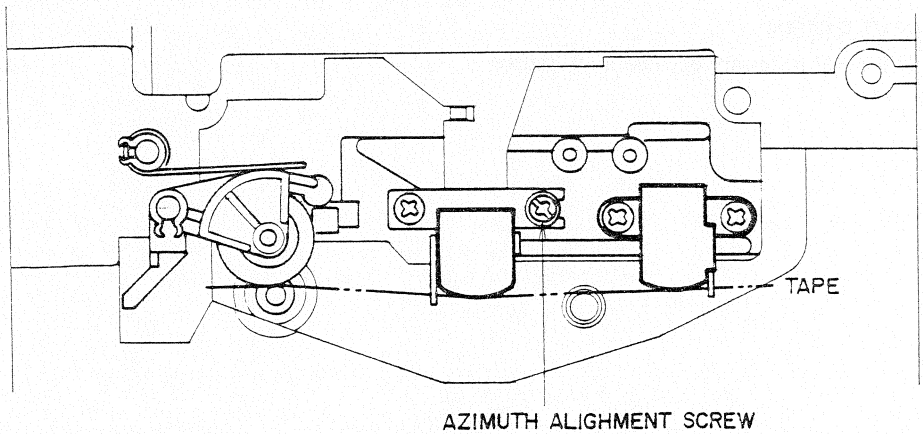


Fig. 5 Tape Speed Adjustment



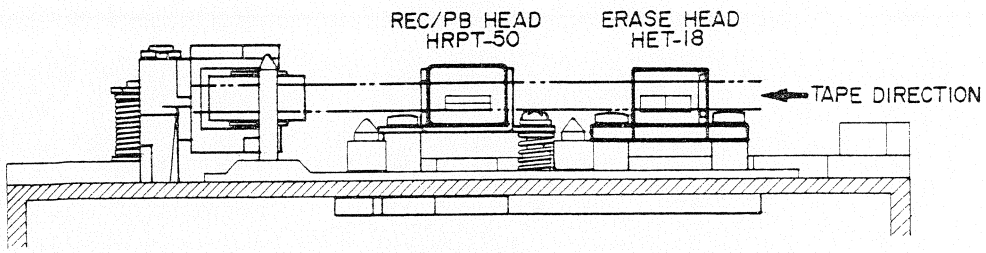


Fig. 6 Head Adjustment

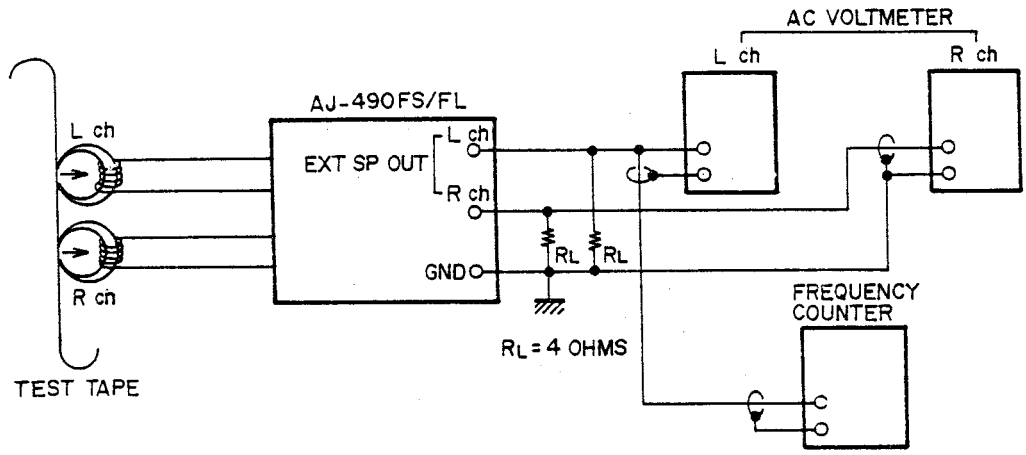


Fig. 7 Instrument Connection

1. **TAPE SPEED ADJUSTMENT (Refer to Figs. 5, 7)**
   Connect the Frequency Counter to the EXT SP OUT Jack. Playback a 1,000Hz cassette test tape and adjust the tape speed adjustment volume to obtain a tape speed of 1,000Hz ±2%.

2. **HEAD ADJUSTMENT (Refer to Figs. 6, 7)**
   Connect the High Sensitivity AC Voltmeter to the EXT SP OUT Jacks. Playback a 10kHz cassette test tape and adjust the azimuth alignment screw until the output level is at maximum on both channels.

NOTE: Connect the EXT SP OUT Jacks to the load resistance R_L (4 ohms).

VII. TUNER ADJUSTMENT

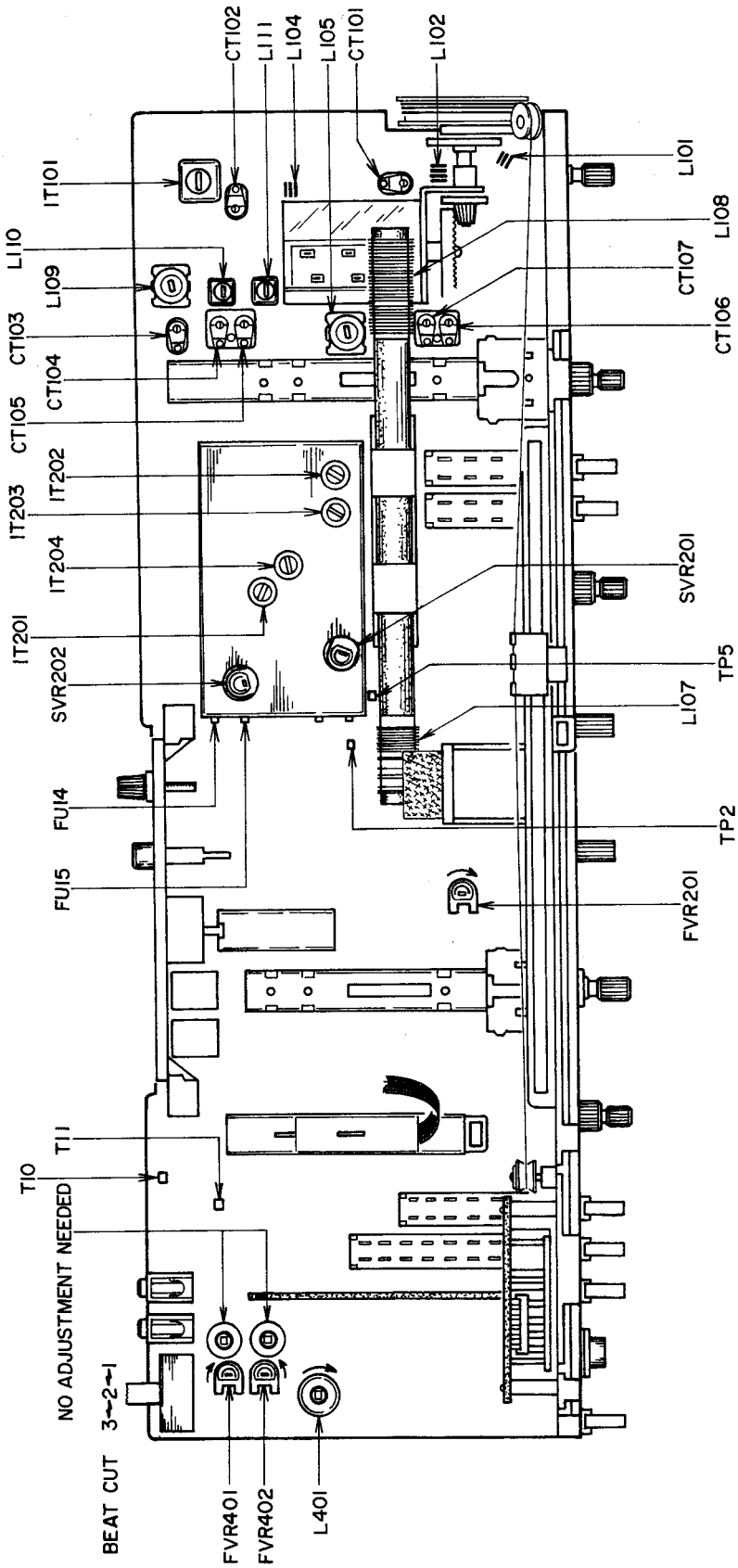


Fig. 8 Adjustment Points

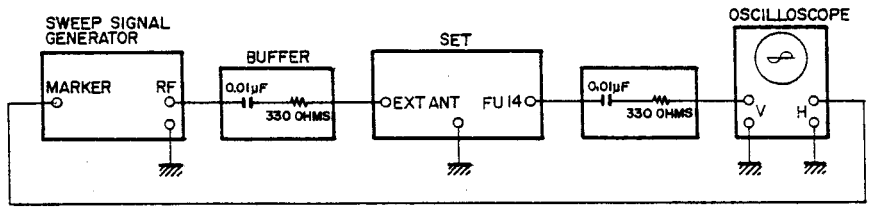


Fig. 9 FM IF Adjustment

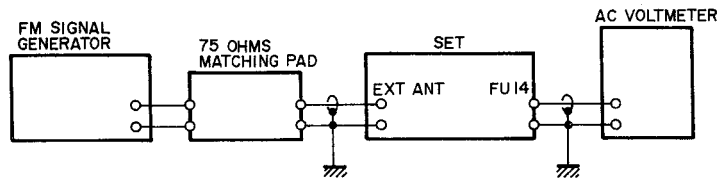


Fig. 10 FM Tracking Adjustment

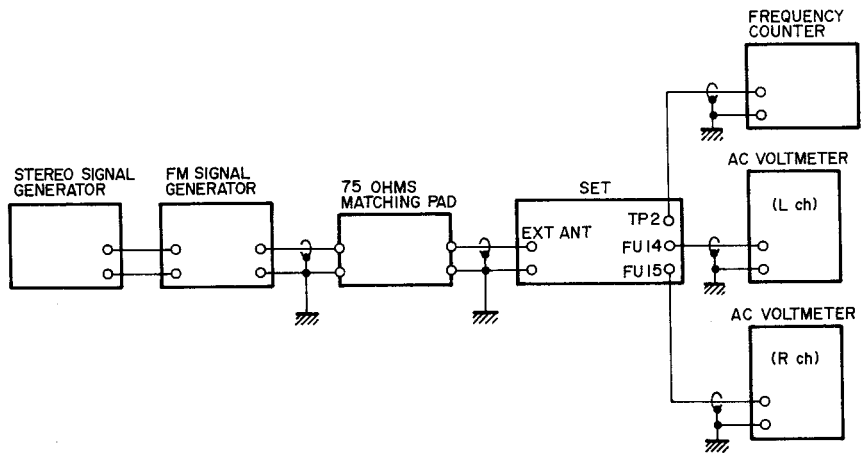


Fig. 11 FM Stereo Adjustment

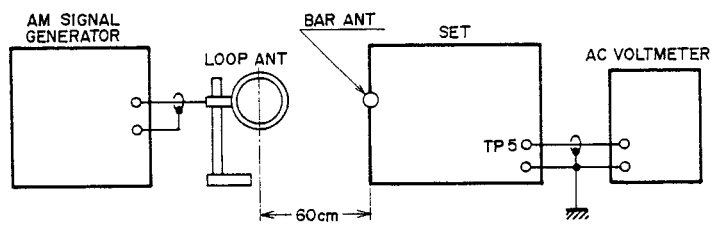


Fig. 12 AM Adjustment

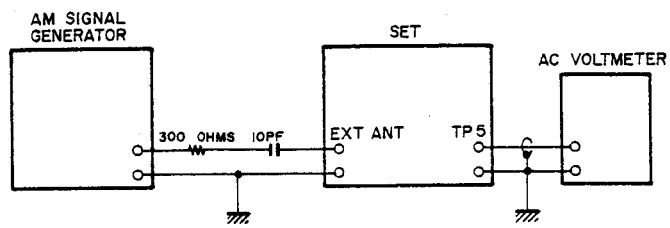


Fig. 13 SW, SW2 Adjustment

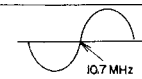
STEP	BAND	ITEM	MODEL		REMARKS
			AJ-490FS	AJ-490FL	
1	FM 87.6MHz to 108MHz	IF Adjustment	IT101 (VLT) IT201 (BLK)	IT102 (VLT) IT201 (VLK)	 Maximum "S" curve waveform (upper/lower waveform symmetricity)
2		Frequency Range	L104 (88 MHz) CT102 (106 MHz)	L104 (88 MHz) CT102 (106 MHz)	88 106 Maximum output
3		Sensitivity	L102, L101 CT101	L102, L101 CT101	Maximum output
4		PLL IC Free Running Frequency	SVR201 (10k ohms)	SVR201 (10k ohms)	Adjust for 1,900 ±0.03 kHz
5		Stereo Separation (Right→Left)	SVR202 (500 ohms)	SVR202 (500 ohms)	Minimum Output at Lch
6	MW 525 kHz to 1605 kHz	IF Adjustment	IT202 (YLW) IT203 (WHT) IT204 (BLK)	IT202 (YLW) IT203 (WHT) IT204 (BLK)	Maximum output
7	MW 525 kHz to 1,605 kHz	Frequency Range	L111 (530 kHz) CT105 (1,600 kHz)	L110 (530 kHz) CT104 (1,600 kHz)	530 1600 Maximum output
8		Sensitivity	L108 (Bar Antenna Core) CT106	L107 (Bar Antenna Core) CT107	Maximum output
9	SW1 3.9 MHz to 12 MHz	Frequency Range	L110 (4.0 MHz) CT104 (12 MHz)		4.0 12 Maximum output
10		Sensitivity	L107 (Bar Antenna Core) CT107		Maximum output
11	SW2 12 MHz to 26 MHz	Frequency Range	L109 (12 MHz) CT103 (26 MHz)		12 26 Maximum output
12		Sensitivity	L105		Maximum output
13	SW 4.9 MHz to 12 MHz	Frequency Range		L109 (5.0 MHz) CT103 (12 MHz)	5.0 12 Maximum output
14		Sensitivity		L105	Maximum output
15	LW 150 MHz to 290 MHz	Frequency Range		L111 (160 MHz) CT105 (290 MHz)	160 290 Maximum output
16		Sensitivity		L108 (Bar Antenna Core) CT106	Maximum output

Chart-1

VIII. AMPLIFIER ADJUSTMENT

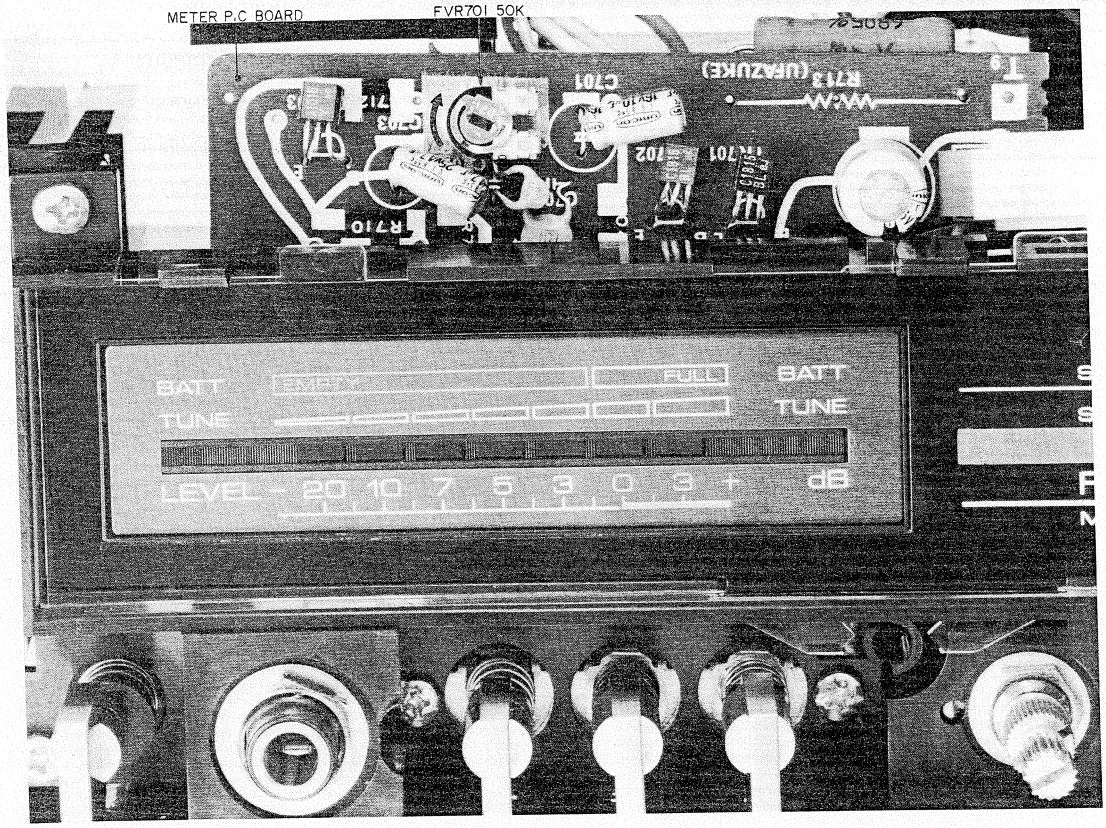


Fig. 14

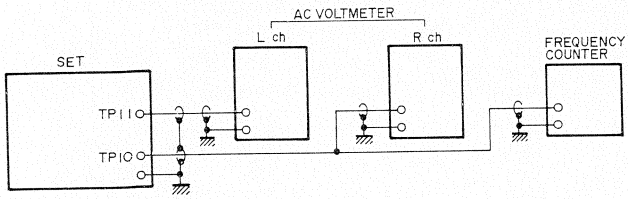


Fig. 15

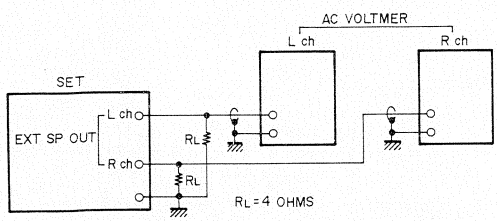


Fig. 16

1. PLAYBACK LEVEL ADJUSTMENT (Refer to Figs. 8 and 15)

Connect the load resistance R_L (4 ohms) and AC voltmeters to the EXT SP OUT of Lch and Rch as shown in Fig. 15.

Set the tape selector to the normal position, play the 333Hz 0VU test tape again and read the level of Rch. Adjust the level of Lch by FVR 201 (50k) until the levels of both Lch and Rch are equal.

2. LED LEVEL SENSITIVITY ADJUSTMENT (Refer to Fig. 14)

Play the 333Hz 0VU test tape again and adjust FVR 701 (50k) until 0 dB LED of LED level indicator is lighted.

3. BIAS OSCILLATION FREQUENCY ADJUSTMENT (Refer to Figs. 8 and 16)

Connect a frequency counter to test point T10 and set the beat cut switch to "1", thus put into REC/PAUSE mode.

Adjust Bias OSC Coil L401 until the frequency counter indicates 64kHz ±1kHz.

4. RECORDING BIAS VOLTAGE ADJUSTMENT (Refer to Figs. 8 and 16)

Connect an AC voltmeter to test points, T10 (Rch) and T11 (Lch). Set the unit to REC/PAUSE mode and switched the tape selector to "Normal". Adjust FVR 401 (50k Rch) and FVR 402 (50k Lch) until the AC voltmeter indicates 3.8mV.

IX. CLASSIFICATION OF VARIOUS P.C BOARDS

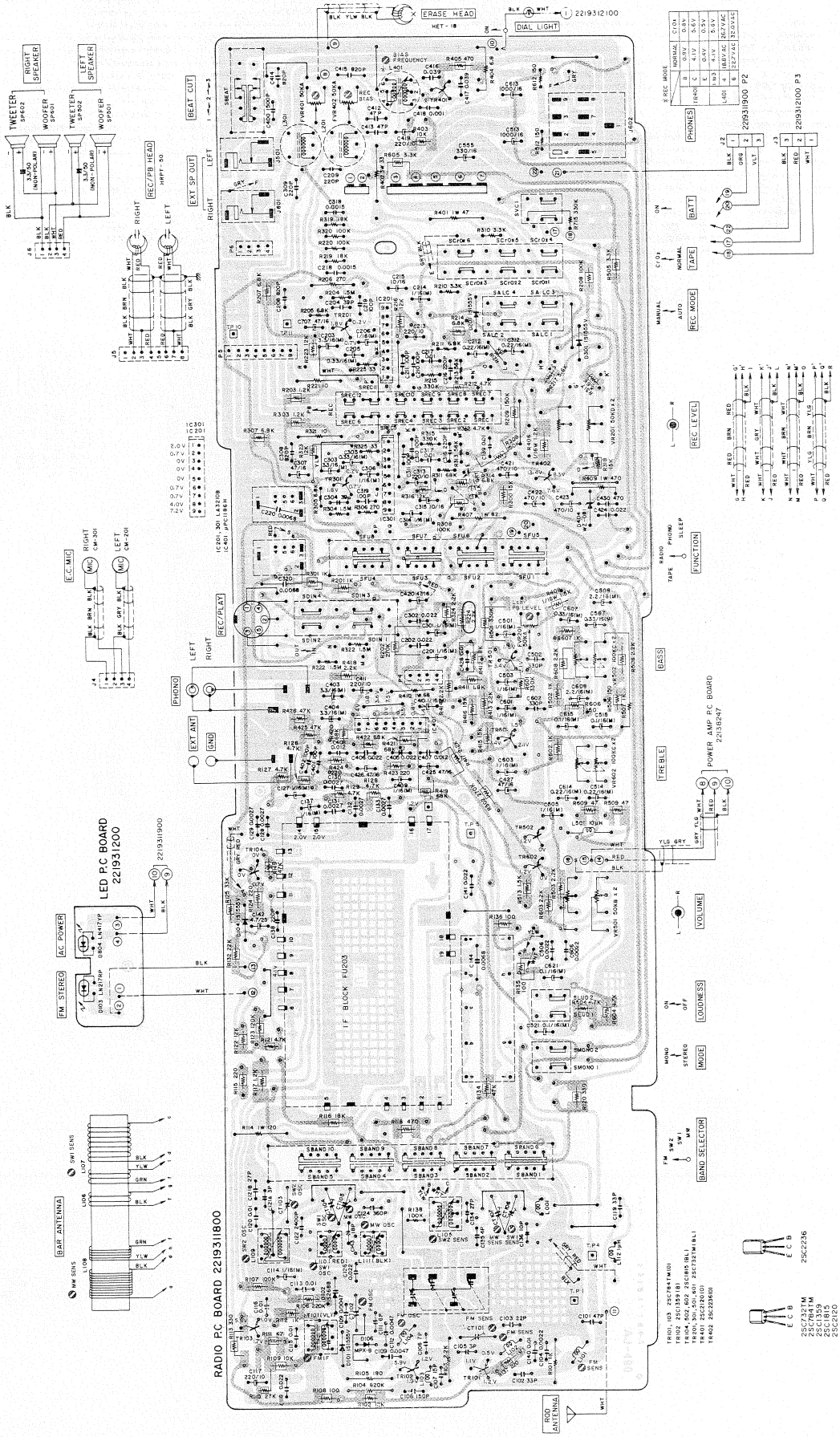
1. P.C BOARD TITLE AND IDENTIFICATION NUMBERS

P.C Board Title	P.C Board Number
Radio P.C Board	2219311800
Power Amp P.C Board	2213824700
Meter P.C Board	2219312100
Power Supply P.C Board	2219311900
LED P.C Board	221931200
Jack P.C Board (U/T)	2219312200
Jack P.C Board (Others)	22193-1200

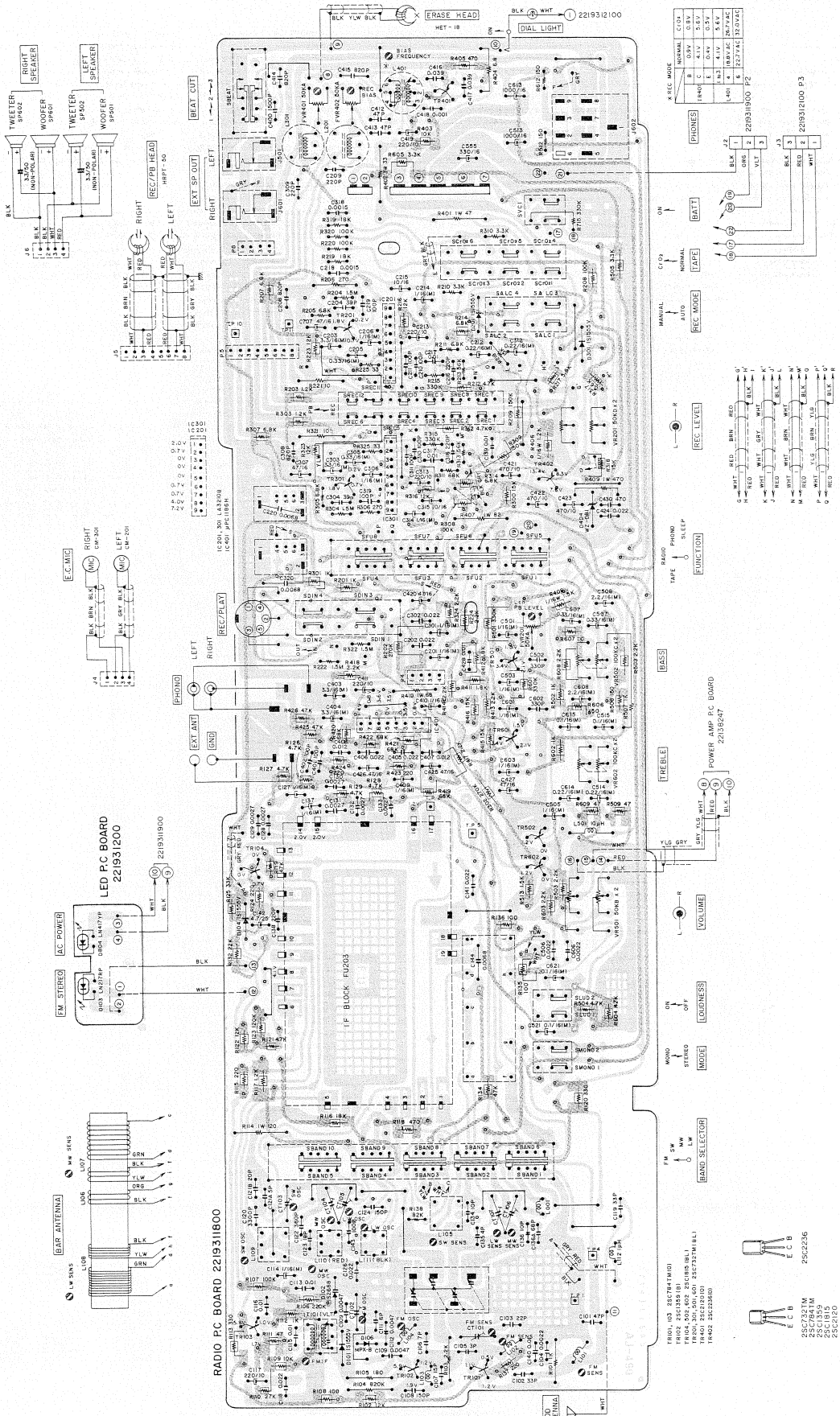
Chart-2

2. COMPOSITION OF VARIOUS P.C BOARDS

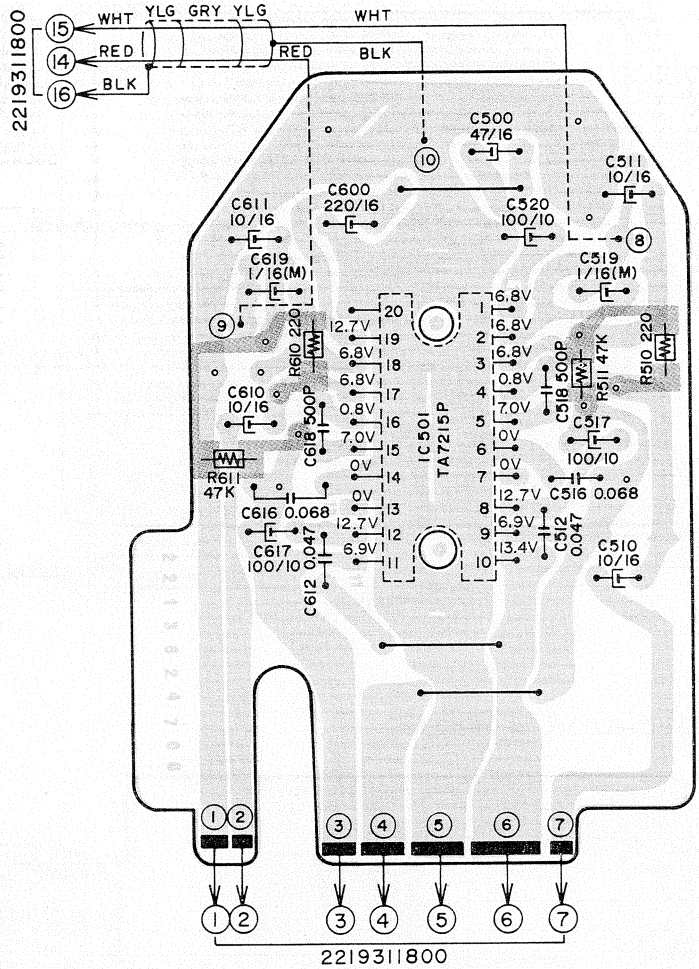
1) RADIO P.C BOARD 2219311800 AND LED P.C BOARD 221931200 (AJ-490FS)



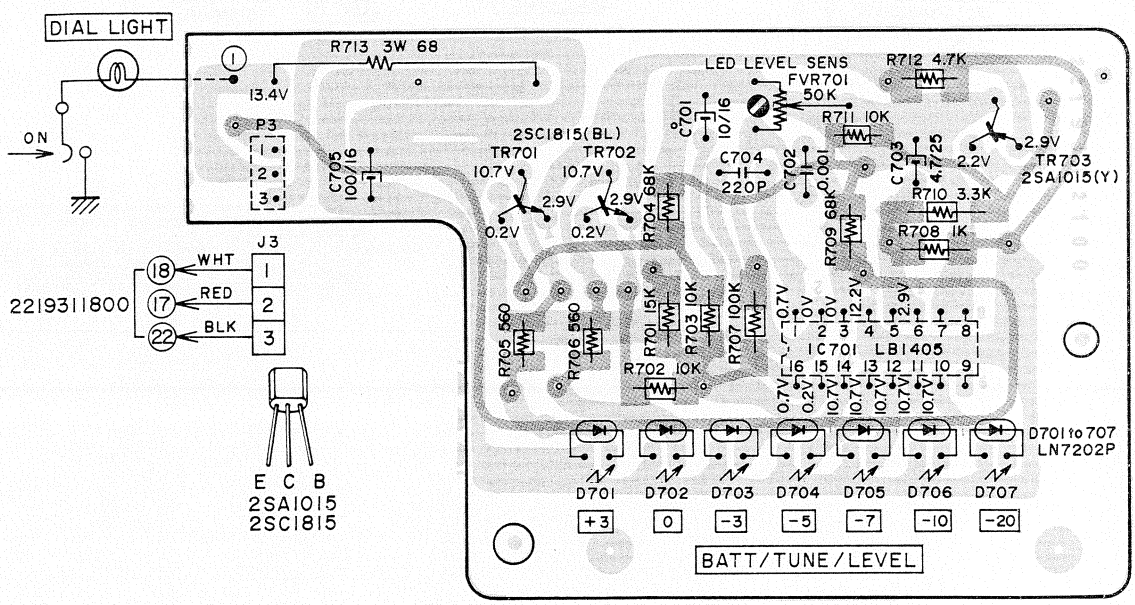
2) RADIO P.C BOARD 2219311800 AND LED P.C BOARD 221931200 (AJ-490FL)



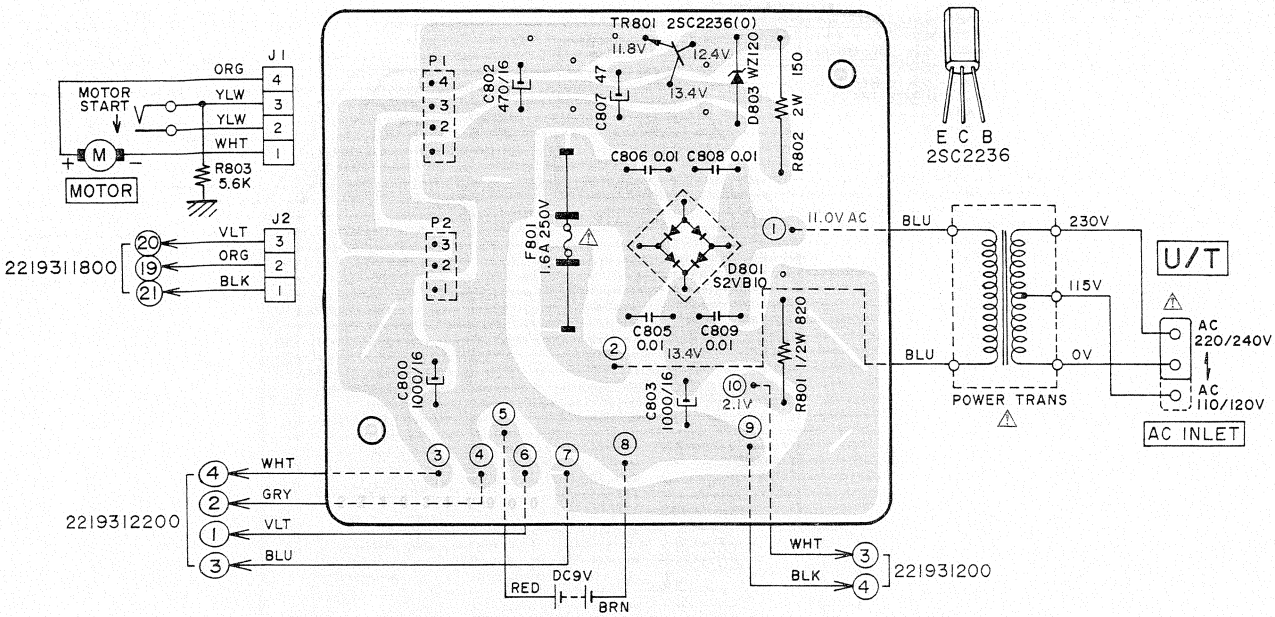
3) POWER AMP P.C BOARD 2213824700



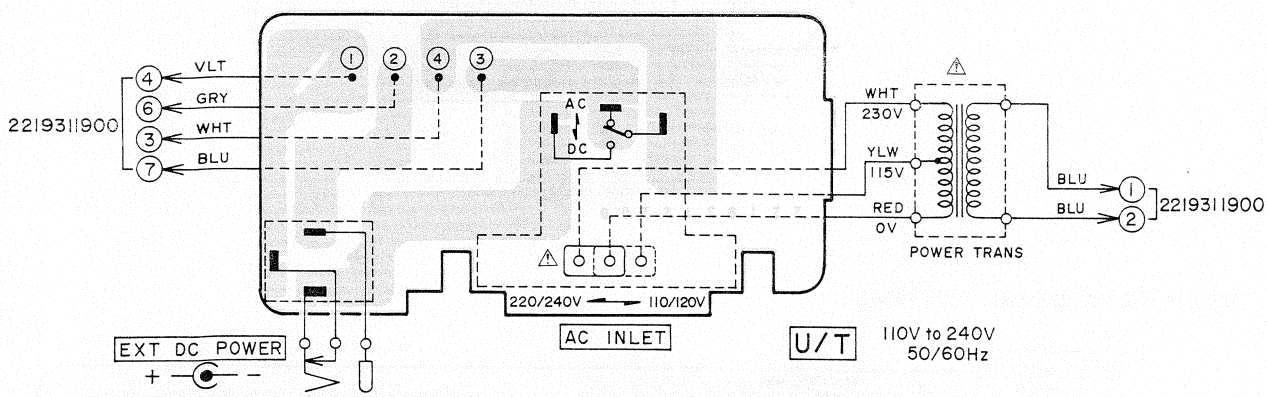
4) METER P.C BOARD 2219312100



5) POWER SUPPLY P.C BOARD 2219311900



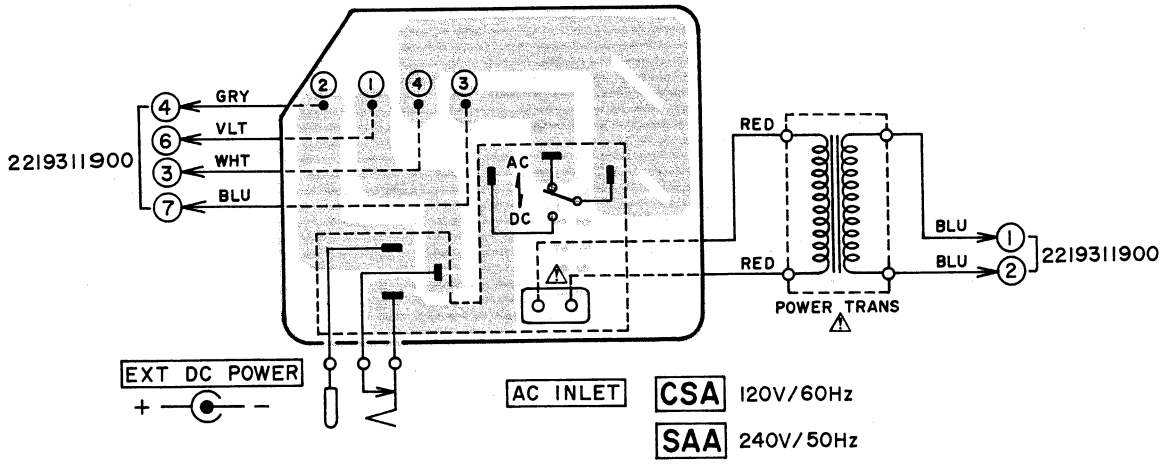
6) JACK P.C BOARD 2219312200 (U/T, AJ-490FS)



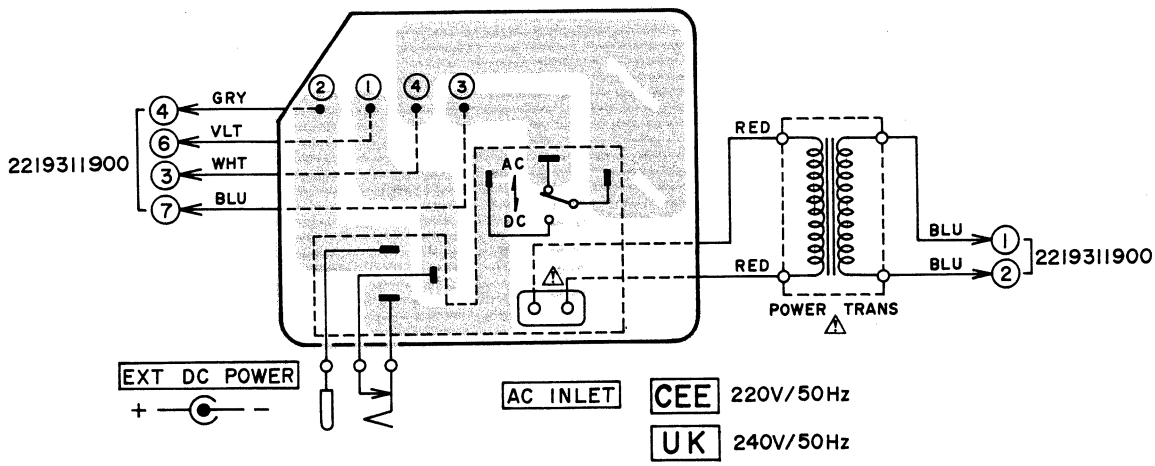
WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: ⚠IL INDIQU LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES CONPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT

7) JACK P.C BOARD 22193-1200 (CSA, SAA, AJ-490FS)



8) JACK P.C BOARD 22193-1200 (CEE, UK, AJ-490FL)



WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQU LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES CONPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT

SECTION 2

PARTS LIST

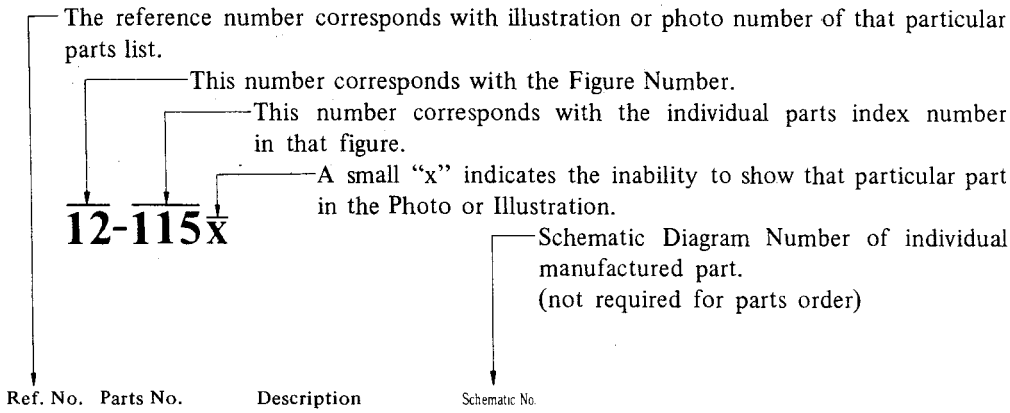
TABLE OF CONTENTS

1. MECHA BLOCK 28
2. P.C BOARDS BLOCK 30
3. ASSEMBLY BLOCK 32

Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read list.


The reference number corresponds with illustration or photo number of that particular parts list.
This number corresponds with the Figure Number.
This number corresponds with the individual parts index number in that figure.
A small "x" indicates the inability to show that particular part in the Photo or Illustration.
12-115x
Schematic Diagram Number of individual manufactured part.
(not required for parts order)

Ref. No.	Parts No.	Description	Schematic No.
		FLYWHEEL BLOCK #13	
12-115x	800425	Flywheel Block Assy. Comp.	RDG-#13
12-116	244506	Flywheel Only	RD-233
12-117x	244754	Felt, Flywheel	RD-275
12-118	251324	Main Metal Case	RD-236
12-119	253080	Main Metal	RD-237

4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of components of the Schematic Diagram or Service Manual.
5. The indications of Resistors and Capacitors in the photos of P.C. Board are being eliminated.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.
   It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

CAUTION:

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Service Manual (Basic Parts List) may be partially changed, please use this parts list for all future reference.

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMEMNDED PARTS.

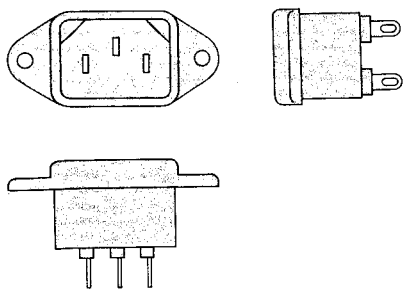
AVERTISSEMENT: ⚠ IL INDIQU LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

AC INLET SYSTEM

This model is equipped with an AC INLET SYSTEM. Please refer to the AC INLET SYSTEM CHART below for the specific type. By the AC INLET SYSTEM, AC (mains) cord can be connected to and disconnected from the model because the model is provided with socket exclusively for AC (mains) cord on its main body.
Please note, however, that certain models are not equipped with this system and has a built-in AC (mains) cord as before.

AC INLET SYSTEM CHART

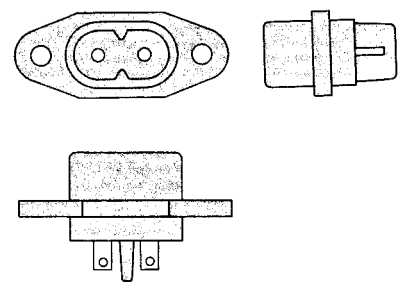
CLASS I

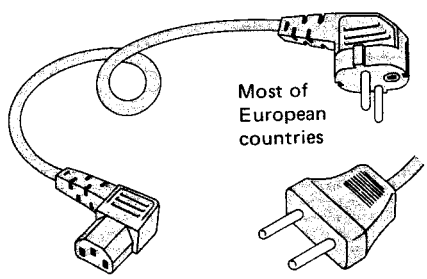


Picture 1
AC INLET to be installed on machines

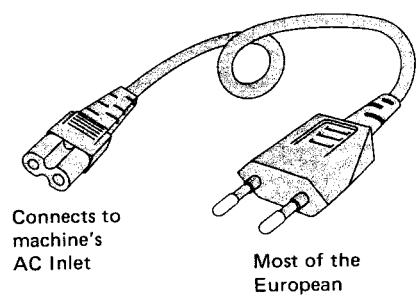
CLASS II

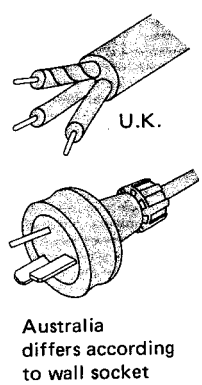
▣ This mark indicating double insulation will be attached to machine's rear panel

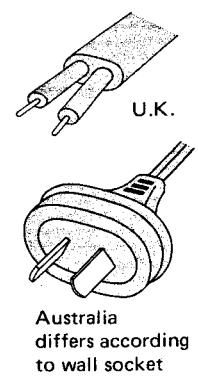




Picture 2
AC (mains) cord



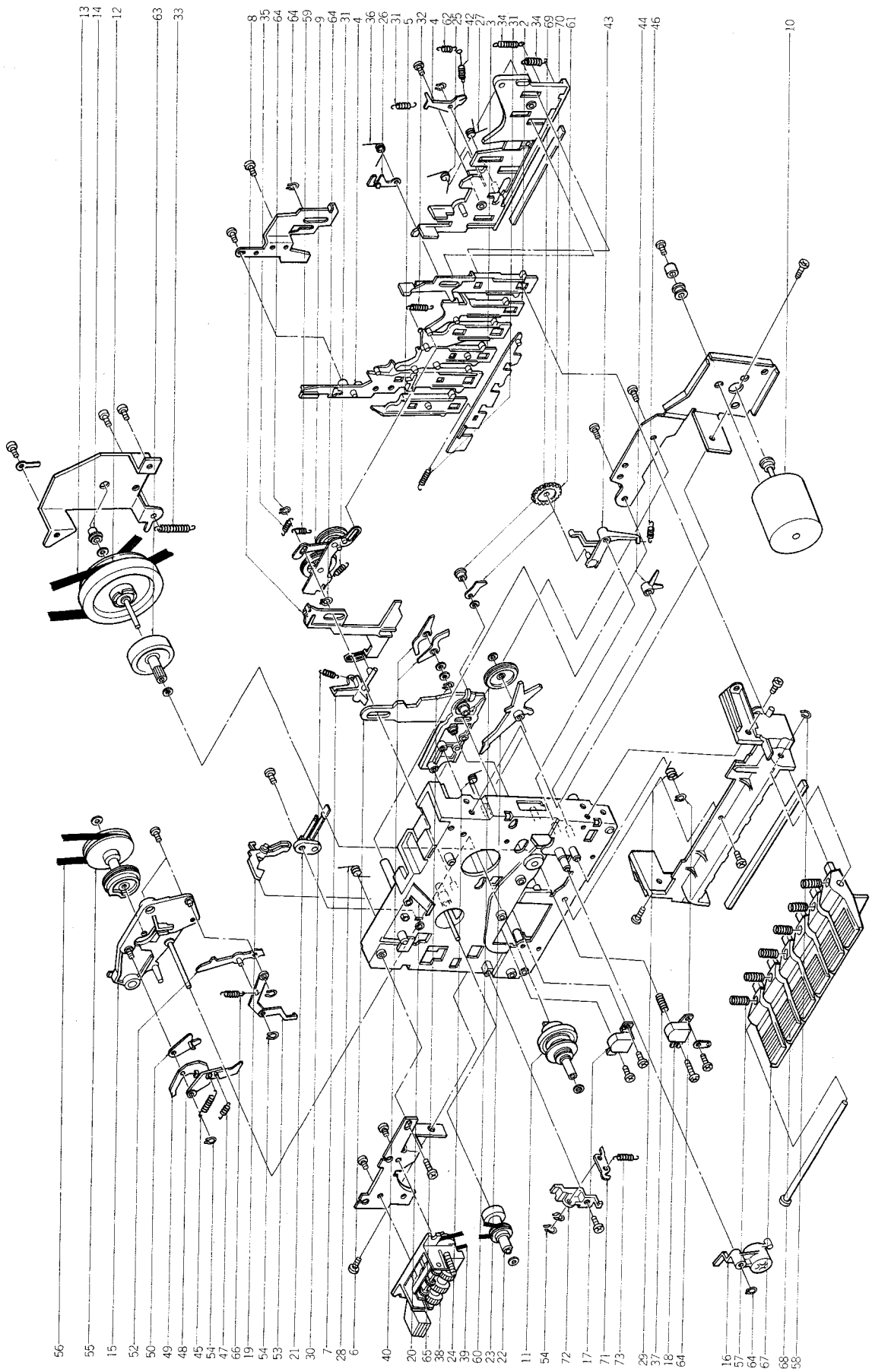




Parts List for AC (mains) Cord Set

Standard		Description	Type of AC Inlet	Parts No.
Class I	CEE	Cord Set CEE (3 cores)	3P	EW302993
	BEAB	Cord Set BEAB (3 cores)	3P	EW302994
	SAA	Cord Set SAA (3 cores)	3P	EW302996
	U/T	Cord Set U/T (3 cores)	3P	EW302646
Class II	CEE	Cord Set CEE (2 cores)	2P	EW638144
	BEAB	Cord Set BEAB (2 cores)	2P	EW302995
	SAA	Cord Set SAA (2 cores)	2P	EW302991
	U/T	Cord Set U/T (2 cores)	2P	EW302899

1. MECHA BLOCK



1. MECHA BLOCK

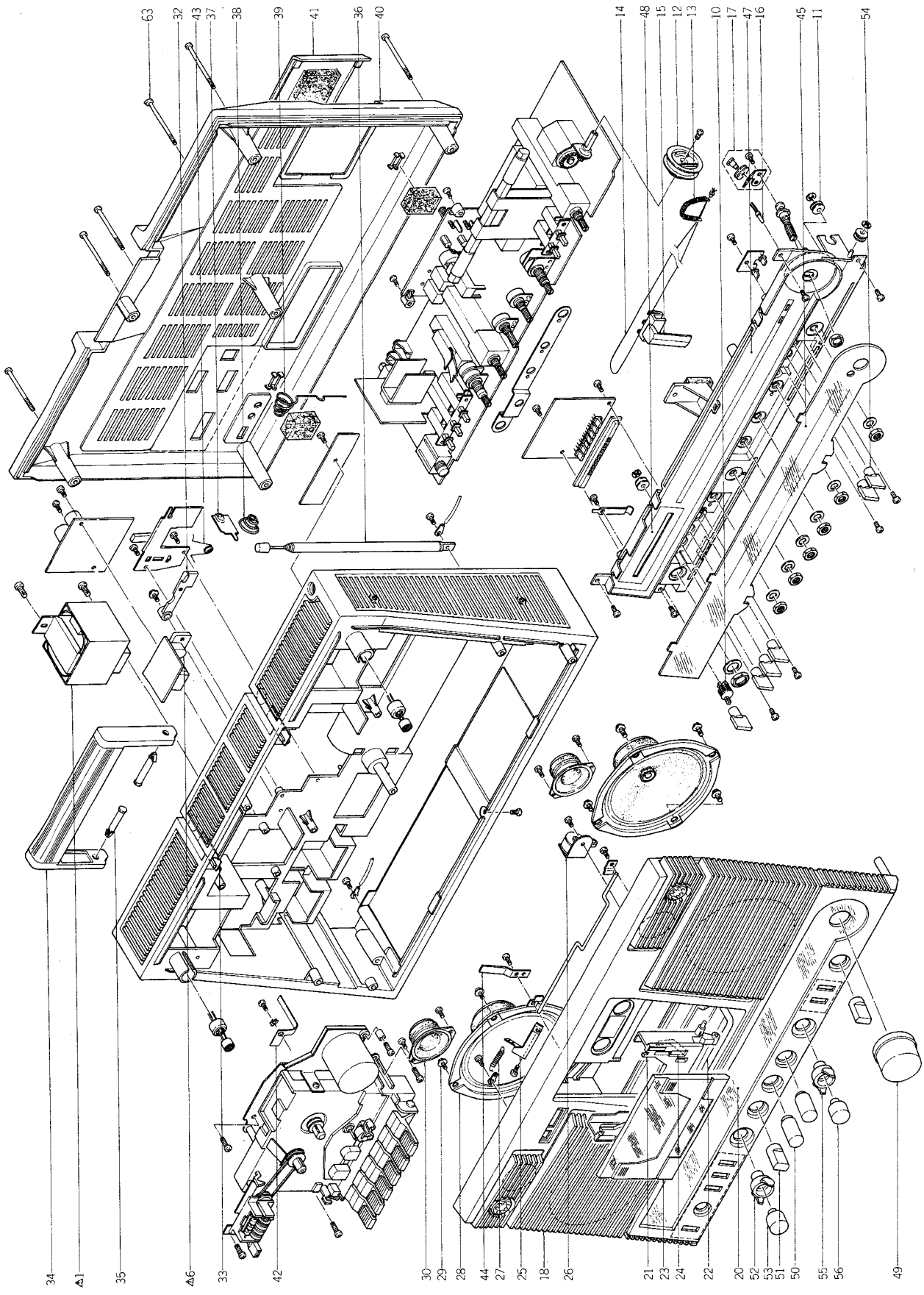
Ref. No.	Parts No.	Description	Schematic No.
1-1x	BZ703511	Mecha Block AJ-490	2571167000
1-2	SB703330	Operation (FF) AJ-490	2578313800
1-3	SB703331	Operation (REW) AJ-490	2578313600
1-4	SB703332	Operation (REC) AJ-490	2578313300
1-5	SB703333	Operation (STOP) AJ-490	2578313500
1-6	ML703334	Head Slider AJ-490	2578320000
1-7	ML703335	Eject Lever AJ-490	2578222500
1-8	ML703336	SW. Slider AJ-490	2578313900
1-9	TK703419	REW Slider AJ-490	2571933100
1-10	BM703409	Motor w/Pulley AJ-490	2212557400
1-11	BR703413	Take-up Reel Table Assy AJ-490	2571234000
1-12	BF703412	Flywheel Assy AJ-490	2571742000
1-13	MB703339	Drive Belt AJ-490	2575533500
1-14	MV703340	Bearing AJ-490	2572534000
1-15	TK703414	ASO Chassis Assy AJ-490	2571944200
1-16	BL703415	Pinch Roller Lever Assy AJ-490	2571731800
1-17	HE703341	Erase Head HET-18	2221817100
1-18	HP703342	REC/P.B Head HRPT-50	2221730700
1-19	ML703343	REC Lock Lever AJ-490	2578222600
1-20	ZG703344	Holder Spring AJ-490	2577450600
1-21	ES703345	Leaf SW. 1C1P	2219539900
1-22	TK703417	Drum Reel Assy AJ-490	2571231800
1-23	TK703418	Idler Mount Assy AJ-490	2571183800
1-24	TK703346	Idler Mount Spring AJ-490	2577325500
1-25	ZG703347	Operation (STOP) Spring AJ-490	2577325400
1-26	ML702599	Pause Lock Lever AJ-360	2578217300
1-27	ZG703349	Operation (REW) Spring AJ-490	2577325300
1-28	ZG703350	REC Lock Spring AJ-490	2577333700
1-29	ZG703351	Pinch Roller Lever Spring AJ-490	2577330100
1-30	ZG703352	Spring 03TN33.5 AJ-490	2577177600
1-31	ZG703353	Spring 03TN14.5 AJ-490	2577172100
1-32	ZG703354	Spring 05TN19.5 AJ-490	2577171700
1-33	ZG703355	Spring 035TN37.5 AJ-490	2577188200
1-34	ZG703356	Spring 04TN16.5 AJ-490	2577172200
1-35	ZG703357	Spring 035TN5 AJ-490	2577172300
1-36	ZG703358	P Lock Spring AJ-490	2577325200
1-37	ZG703359	Head Spring AJ-490	2577224000
1-38	MC703360	Counter AJ-490	2587320500
1-39	MB703362	Belt 1K41 AJ-490	2575535900
1-40	ML703363	Review Lever AJ-490	2574832100
1-41	ML703364	REC STOP Lever AJ-490	2574824500
1-42	ZG703365	Spring 03TN13.5 AJ-490	2577178100
1-43	ML703366	ASO Lever AJ-490	2578217500
1-44	ML703367	Release Lever AJ-490	2578217100
1-45	ZG703368	Spring 03TN21 AJ-490	2577193700
1-46	ZG703369	Spring 02TN4.25 AJ-490	2577171400
1-47	ZG703370	Spring 02TN12.5 AJ-490	2577161000
1-48	ML703371	Pause Lever AJ-490	2578219400
1-49	ML703373	STOP Lever AJ-490	2578219300
1-50	ML703374	Bias Lever AJ-490	2578219700
1-51x	ZG703375	Spring 02TN10.5 AJ-490	2577184300
1-52	ML703376	Detection Lever AJ-490	2578219500
1-53	ML703377	Push Lever AJ-490	2578219600
1-54	ZW703378	E Ring 2.5M AJ-490	2573519700
1-55	TK703411	Cam Wheel Assy AJ-490	2571342400
1-56	MB703379	Belt 1K46.5 AJ-490	2575539000
1-57	ZG703380	Button Spring AJ-490	2577244700
1-58	ZW703381	E Ring ERR040SKZN3A	7405004000
1-59	ZG703382	Spring 03TN11.5 AJ-490	2577172400
1-60	TK703420	Take-up Idler Assy AJ-490	2571339600
1-61	TK703384	ASO Gear AJ-490	2575614900
1-62	ZG703385	Spring 02TN13.5 AJ-490	2577178000
1-63	TK703410	Clutch Wheel Assy AJ-490	2571736100
1-64	ZW703386	E Ring 3M AJ-490	2270318700
1-65	ZW703387	E Ring 4M AJ-490	2270318800
1-66	ZG703388	Spring 02TN29.5 AJ-490	2577600200
1-67	SK703389	Knob AJ-490	2581656100
1-68	SK703390	REC Knob AJ-490	2581657600
1-69	ZW703391	Boss 4D1.6 AJ-490	2572537600
1-70	ML703392	Waiting Lever AJ-490	2578223600
1-71	ML703393	Lock Lever AJ-490	2578224300
1-72	TK703394	Lock Lever Mount AJ-490	2578318100
1-73	ZG703395	Spring 03TN14.5 AJ-490	2577158800

2. P.C BOARD BLOCK

Symbol No.	Parts No.	Description	Schematic No.
		RADIO P.C BOARD BLOCK	
2-1	BA703507	Radio PCB Comp. AJ-490FS	2213122300
2-2	BA703508	Radio PCB Comp. AJ-490FL	2213122400
2-IC201	EI702675	IC LA3210B	2211470500
2-IC301	EI702675	IC LA3210B	2211470500
2-IC401	EI703253	IC MPC1186H	2211477700
2-IC501	EI703252	IC TA7215P	4031964000
2-TR101	ET703254	Transistor 2SC784TM(O)	3673812000
2-TR102	ET703256	Transistor 2SC1359(B)	2211454700
2-TR103	ET703254	Transistor 2SC784TM(O)	3673812000
2-TR104	ET741902	Transistor 2SC1815(BL) AC-3750	3631748000
2-TR201	ET741887	Transistor 2SC732TM (BL) AC-3750	3673314000
2-TR301	ET741887	Transistor 2SC732TM (BL) AC-3750	3673314000
2-TR401	ET703255	Transistor 2SC2120(O)	3632122000
2-TR402	ET703257	Transistor 2SC2236(O)	3632552000
2-TR501	ET741887	Transistor 2SC732TM (BL) AC-3750	3673314000
2-TR502	ET741902	Transistor 2SC1815(BL) AC-3750	3631748000
2-TR601	ET741887	Transistor 2SC732TM (BL) AC-3750	3673314000
2-TR602	ET741902	Transistor 2SC1815(BL) AC-3750	3631748000
2-D101	ED741904	Diode 1S1555V AC-3750	3724670300
2-D102	ED702702	Silicon Diode 1S2688	2211521000
2-D104	ED741904	Diode 1S1555V AC-3750	3724670300
2-D106	ED702704	Diode MPX-B	2211550600
2-D201	ED741904	Diode 1S1555V AC-3750	3724670300
2-D301	ED741904	Diode 1S1555V AC-3750	3724670300
2-D404	ED742139	Diode WZ081 AC-3750	2211530000
2-L101	EO742243	FM RF Coil	2229406900
2-L102	EO742244	FM RF Coil	2229407000
2-L103	EO703262	Choke Coil AJ-490	2229102100
2-L104	EO703261	FM-RF Coil AJ-490	2229416300
2-L105	EO742271	SW2 ANT Coil (FS)	2228219200
2-L105	EO703272	SW-ANT Coil AJ-490 (FL)	2228219300
2-L106to108	TK703406	ANT Coil Assy AJ-490 (FS)	2224276000
2-L106to108	TK703407	ANT Coil Assy AJ-490 (FL)	2224276100
2-L109	EO703264	SW2-OSC Coil AJ-490 (FS)	2228529500
2-L109	EO703266	SW-OSC Coil AJ-490 (FL)	2228528600
2-L110	EO703263	SW1-OSC Coil AJ-490 (FS)	2228529400
2-L110	EO742249	MW OSC Coil (FL)	2224535300
2-L111	EO742249	MW OSC Coil (FS)	2224535300
2-L111	EO702670	LW OSC Coil (FL)	2220505800
2-L112	EO703262	Choke Coil AJ-490	2229102100
2-L201	EO741959	AF Choke Coil AC-3750	2221124100
2-L301	EO741959	AF Choke Coil AC-3750	2221124100
2-L401	EO703278	TP-OSC Coil AJ-490	2221507800
2-L501	EO742256	RF Choke Coil (FS)	9229101201
2-L501	EO703262	Choke Coil AJ-490 (FL)	2229102100
2-L1001	EO742246	FM Choke Coil	2229100900
2-IT101	BT703320	FM-IF Trans. AJ-490	2226557000
2-VC101to104	EE703265	Poly. Vari. Con AJ-490	2230829800
2-TC101to103	EC742262	Trimmer/C.	2230908100
2-TC104to107	EC703269	Trimmer/C. AJ-490	2230912800
2-VR201	EV703399	Double-Axial 2-Throw/ Vol. D16 50kD (REC LEVEL)	2265520700
2-VR501	EV703321	Double-Axial 2-Throw/ Vol. D16 50k(B) w/Tap (VOLUME)	2265520800
2-VR502	EV703275	Vol. D16 10kC (BASS)	2265122200
2-VR602	EV703275	Vol. D16 10kC (TREBLE)	2265122200
2-FVR401,402	EV703279	Semi-Fixed/Vol. 50k	2265844600
2-S LOU	ES703267	Push SW. AJ-490 (LOUDNESS, MODE)	2214058600
2-S BEAT	ES703268	Slide SW. AJ-490 (BEAT)	2214060600
2-S VC	ES703270	Push SW. AJ-490 (BATT, TAPE, REC)	2214058500
2-S BAND	ES703273	Rotary SW. AJ-490 (BAND)	2214058900
2-S FU	ES703274	Rotary SW. AJ-490 (FUNCTION)	2214058800
2-S REC	ES703276	Slide SW. AJ-490 (REC)	2214059400
2-S DIN	ES703277	Slide SW. AJ-490 (DIN)	2214060500
2-3	TK703421	Remote SW. Assy AJ-490	2274661300
2-4	EJ741975	Mic. Jack 6.5-ST	2216372000
2-5	EJ703408	Jack Assy AJ-490	2216374900
2-J501	EJ742263	D3.5 Jack (EX. SP)	2216330700
2-J601	EJ742263	D3.5 Jack (EX. SP)	2216330700
2-CM201	TK703280	Condenser Mic AJ-490	2215422100
2-CM301	TK703280	Condenser Mic AJ-490	2215422100
2-C114	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C120	EC703325	Styrol/C. 3300pF(J) 50WV (FL)	223913320Q
2-C122	EC742270	Styrol/C. (Vert.) 2200pF(J) 50WV (FS)	223912220Q
2-C122	EC703322	Styrol/C. 360pF(J) 50WV (FL)	2232119300
2-C124	EC703322	Styrol/C. 360pF(J) 50WV (FS)	2232119300
2-C124	EC702672	Styrol/C. (Vert.) 150pF (J) 50WV (FL)	223911510Q
2-C127	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C137	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C201	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C203	EC703402	Solid Aluminum/C. 3.3μF	2240205600
2-C205	EC703396	Solid Aluminum/C. 0.33μF (FS)	2240205200
2-C205	EC703402	Solid Aluminum/C. 3.3μF (FL)	2240205600
2-C206	EC703400	Solid Aluminum/C. 1μF (FS)	2240205400
2-C208	EC702693	Styrol/C. (Vert.) 820pF (J) 50WV	223918210Q
2-C212	EC703296	Solid Aluminum/C. 0.22μF	2240205100
2-C214	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C301	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C303	EC703402	Solid Aluminum/C. 3.3μF	2240205600
2-C305	EC703396	Solid Aluminum/C. 0.33μF (FS)	2240205200
2-C305	EC703402	Solid Aluminum/C. 3.3μF (FL)	2240205600
2-C306	EC703400	Solid Aluminum/C. 1μF (FS)	2240205400
2-C308	EC702693	Styrol/C. (Vert.) 820pF (J) 50WV	223918210Q
2-C312	EC703296	Solid Aluminum/C. 0.22μF	2240205100
2-C314	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C400	EC703323	Styrol/C. 820pF(J) 100WV	2232118800
2-C403,404	EC703402	Solid Aluminum/C. 3.3μF	2240205600
2-C409,410	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C414	EC703323	Styrol/C. 820pF(J) 100WV	2232118800

Symbol No.	Parts No.	Description	Schematic No.
2-C415	EC703324	Styrol/C. 8200pF(J) 100WV	2232118900
2-C501	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C503	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C505	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C507	EC703396	Solid Aluminum/C. 0.33μF	2240205200
2-C508	EC703401	Solid Aluminum/C. 2.2μF	2240205500
2-C514	EC703296	Solid Aluminum/C. 0.22μF	2240205100
2-C515	EC703291	Solid Aluminum/C. 0.1μF	2240205000
2-C519	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C521	EC703291	Solid Aluminum/C. 0.1μF	2240205000
2-C601	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C603	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C607	EC703396	Solid Aluminum/C. 0.33μF	2240205200
2-C608	EC703401	Solid Aluminum/C. 2.2μF	2240205500
2-C614	EC703296	Solid Aluminum/C. 0.22μF	2240205100
2-C615	EC703291	Solid Aluminum/C. 0.1μF	2240205000
2-C619	EC703400	Solid Aluminum/C. 1μF	2240205400
2-C621	EC703291	Solid Aluminum/C. 0.1μF	2240205000
	IF P.C BOARD BLOCK		
2-6	BA703510	IF PCB Comp. AJ-490	2213646100
2-IC201	EI702666	IC AN7218-BB	2211467900
2-TR201,202	ET703295	Transistor 2SC1815(Y)	3631744000
2-D201,202	ED741904	Diode 1S1555V AC-3750	3724670300
2-D203to205	ED703259	Diode IN60	3700090000
2-IT201	BT742251	FM IF Trans.	2226728500
2-IT202	BT703297	AM-IF Trans. AJ-490	2226478300
2-IT203	BT742253	AM IF Trans.	2226476700
2-IT204	BT742254	AM IF Trans.	2226635200
2-SVR201	EV703298	Semi-Fixed/Vol. 10k	2265845400
2-SVR202	EV703299	Semi-Fixed/Vol. 500 ohms	2265844300
2-CF202	ER742257	Ceramic Filter	2215309600
2-CR201	EI742266	CR Block	2213412200
2-CR202	EI742267	CR Block	2213412300
2-C205	EC702683	Solid Aluminum/C. (Vert.) 1μF(M) 16WV	2240203400
2-C231	EC703327	Styrol/C. 470pF(J) 50WV	223914710P
2-C232	EC702643	Solid Aluminum/C. (Vert.) 0.33μF(M) 16WV	2240203200
2-C233	EC702683	Solid Aluminum/C. (Vert.) 1μF(M) 16WV	2240203400
2-C234	EC703348	Solid Aluminum/C. 2.2μF	2240203600
2-C237	EC702683	Solid Aluminum/C. (Vert.) 1μF(M) 16WV	2240203400
	POWER SUPPLY P.C BOARD BLOCK		
2-TR801	ET703255	Transistor 2SC2120(O)	3632122000
2-D801	ED703290	Diode S2VB10	2211532600
2-D803	ED703292	Diode WZ120	2211530600
2-F801	EF702644	⚠ Fuse 1.6A	2214419700
	METER P.C BOARD BLOCK		
2-IC701	EI703241	IC LB1405	2211476900
2-TR701,702	ET741902	Transistor 2SC1815 (BL) AC-3750	3631748000
2-TR703	ET703397	Transistor 2SA1015(Y)	3653404A00
2-D103	ED703243	LED LN217RP (ST. IND)	2211553000
2-D701to707	ED703242	LED LN07202P	2211552500
2-D804	ED703310	LED LN417YP (POWER)	2211554000
2-FVR701	EV703311	Semi-Fixed/Vol. 50k	2265844600
2-R713	ER703398	Metal Oxide Film/R. 3W 68 ohms	2257568001

3. ASSEMBLY BLOCK



3. ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.
3-1	BT703286	⚠ Power Trans. AJ-490(U/T)	2222350400
3-2x	BT703281	⚠ Power Trans. AJ-490(SAA)	2222350500
3-3x	BT703283	⚠ Power Trans. AJ-490(CSA)	2222350600
3-4x	BT703284	⚠ Power Trans. AJ-490(CEE)	2222350700
3-5x	BT703285	⚠ Power Trans. AJ-490(UK)	2222350800
3-6	EJ703288	⚠ AC Socket AJ-490(U/T)	2216786700
3-7x	EJ703287	⚠ AC Socket AJ-490 (CSA,SAA)	2216787800
3-8x	EJ702640	⚠ AC-DC Socket	2216786800
3-9x	EJ703289	⚠ Ext. Power Jack AJ-490 (U/T)	2216375000
3-10	ZG703237	Clamp Spring AJ-490	2277663300
3-11	MR703238	Pulley AJ-490	2274203800
3-12	TK703239	Drum AJ-490	2274261900
3-13	ZG703307	Pull Spring AJ-490	2277162400
3-14	TA703308	Dial Thread AJ-490	2277200300
3-15	TK703240	Pointer AJ-490	2274164700
3-16	EL703309	Pilot Lamp 0.028/14	2211346500
3-17	TK703405	Pulley Assy AJ-490	2274262000
3-18	BC703403	Cabinet Assy AJ-490(FS)	2283190200
3-19x	BC703423	Cabinet Assy AJ-490(FL)	2283192000
3-20	TK703220	Dial Cover AJ-490	2283783000
3-21	TK703221	Cassette Holder AJ-490	2283281200
3-22	TK703222	Handle AJ-490	2284952700
3-23	TK703223	Cassette Cover AJ-490	2283281000
3-24	ZG703224	Plate Spring AJ-490	2277260600
3-25	ML703226	Spring Bracket AJ-490	2073568800
3-26	TK703422	Damper Assy AJ-490	2574660800
3-27	ZG703654	Pull Spring AJ-490	2277664700
3-28	SS703230	Speaker D120 AJ-490	2215179600
3-29	ZS462194	Tapping Screw, #2 pan 3x8 (W=8)	
3-30	SS703231	Speaker D40 AJ-490	2215179700
3-31x	EC703328	Elect./C. 3.3μF(M) 50WV (C522, 622)	2240304200
3-32	ML703303	SW. Lever AJ-490	2274661200
3-33	ZG703232	Plate Spring AJ-490	2277260700
3-34	TK703404	Handle Assy AJ-490	2282853300
3-35	TK703302	Handle Shaft AJ-490	2274358700
3-36	EE703233	Rod Ant AJ-490	2212427500
3-37	TK742237	Contact (C) AJ-360	2273315300
3-38	TK742236	Contact (B) AJ-360	2272551400
3-39	ZG703329	Cone Spring AJ-490	2070774700
3-40	BC703234	Sub Cabinet AJ-490	2283190400
3-41	TK703305	Battery Cover AJ-490	2283281100
3-42	ZG703235	Plate Spring AJ-490	2277261000
3-43	ZG703306	Torsion Spring AJ-490	2277553100
3-44	ZG703652	Plate Spring AJ-490	2277257400
3-45	TK703244	Dial Plate AJ-490(FS)	2284787900
3-46x	TK703249	Dial Plate AJ-490(FL)	2284788500
3-47	TK703312	Back Dial AJ-490	2284788000
3-48	TK703313	LED Decoration Plate AJ-490	2284458800
3-49	SK703245	Tuning Knob AJ-490	2283576800
3-50	SK703246	Tone Knob AJ-490	2283576900
3-51	SK703248	Selector Knob AJ-490	2283576600
3-52	SK703314	Vol. Knob (L) AJ-490 (GREEN)	2283577000
3-53	SK703316	Vol. Knob AJ-490 (GREEN)	2283576700
3-54	SB703317	Push Button AJ-490	2283576500
3-55	SK703318	Vol. Knob (L) AJ-490 (RED)	2283578000
3-56	SK703319	Vol. Knob AJ-490 (RED)	2283577900
3-57	EJ703250	1P Plug AJ-490	2216483500
3-58x	EW702646	⚠ AC Cord AJ-360(U/T)	2217651900
3-59x	EW702650	⚠ AC Cord AJ-360(SAA)	2217659200
3-60x	EW702647	⚠ AC Cord AJ-360(CSA)	2217650000
3-61x	EW703251	⚠ AC Cord (UK) AJ-490	2217659800
3-62x	EW702648	⚠ AC Cord AJ-360(CEE)	2217649200
3-63	ZS702661	Special Screw	2270153300

INDEX

Parts No.	Ref. No. & Symbol No.	Parts No.	Ref No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.
BA703507	2-1	EC703400	2-C501	EO703278	2-L401	ML703336	1-8	TK703421	2-3
BA703508	2-2	EC703400	2-C503	EO741959	2-L201	ML703343	1-19	TK703422	3-26
BA703510	2-6	EC703400	2-C505	EO741959	2-L301	ML703363	1-40	TK742236	3-38
BC703234	3-40	EC703400	2-C519	EO742243	2-L101	ML703364	1-41	TK742237	3-37
BC703403	3-18	EC703400	2-C601	EO742244	2-L102	ML703366	1-43	ZG703224	3-24
BC703423	3-19x	EC703400	2-C603	EO742246	2-L1001	ML703367	1-44	ZG703232	3-33
BF703412	1-12	EC703400	2-C619	EO742249	2-L110	ML703371	1-48	ZG703235	3-42
BL703415	1-16	EC703401	2-C508	EO742249	2-L111	ML703373	1-49	ZG703237	3-10
BM703409	1-10	EC703401	2-C608	EO742256	2-L501	ML703374	1-50	ZG703306	3-43
BR703413	1-11	EC703402	2-C203	EO742271	2-L105	ML703376	1-52	ZG703307	3-13
BT703281	3-2x	EC703402	2-C205	ER703398	2-R713	ML703377	1-53	ZG703329	3-39
BT703283	3-3x	EC703402	2-C303	ER742257	2-CF202	ML703392	1-70	ZG703344	1-20
BT703284	3-4x	EC703402	2-C305	ES703267	2-S LOU	ML703393	1-71	ZG703347	1-25
BT703285	3-5x	EC703402	2-C403,404	ES703268	2-S BEAT	MR703238	3-11	ZG703349	1-27
BT703286	3-1	EC742262	2-TC101to103	ES703270	2-S VC	MV703340	1-14	ZG703350	1-28
BT703297	2-IT202	EC742270	2-C122	ES703273	2-S BAND	SB703317	3-54	ZG703351	1-29
BT703320	2-IT101	ED702702	2-D102	ES703274	2-S FU	SB703330	1-2	ZG703352	1-30
BT742251	2-IT201	ED702704	2-D106	ES703276	2-S REC	SB703331	1-3	ZG703353	1-31
BT742253	2-IT203	ED703242	2-D701to707	ES703277	2-S DIN	SB703332	1-4	ZG703354	1-32
BT742254	2-IT204	ED703243	2-D103	ES703345	1-21	SB703333	1-5	ZG703355	1-33
BZ703511	1-1x	ED703259	2-D203to205	ET703254	2-TR101	SK703245	3-49	ZG703356	1-34
EC702643	2-C232	ED703290	2-D801	ET703254	2-TR103	SK703246	3-50	ZG703357	1-35
EC702672	2-C124	ED703292	2-D803	ET703255	2-TR401	SK703248	3-51	ZG703358	1-36
EC702683	2-C205	ED703310	2-D804	ET703255	2-TR801	SK703314	3-52	ZG703359	1-37
EC702683	2-C233	ED741904	2-D101	ET703256	2-TR102	SK703316	3-53	ZG703365	1-42
EC702683	2-C237	ED741904	2-D104	ET703257	2-TR402	SK703318	3-55	ZG703368	1-45
EC702693	2-C208	ED741904	2-D201	ET703295	2-TR201,202	SK703319	3-56	ZG703369	1-46
EC702693	2-C308	ED741904	2-D301	ET703397	2-TR703	SK703389	1-67	ZG703370	1-47
EC703269	2-TC104to107	ED741904	2-D201,202	ET741887	2-TR201	SK703390	1-68	ZG703375	1-51x
EC703291	2-C515	ED742139	2-D404	ET741887	2-TR301	SS703230	3-28	ZG703380	1-57
EC703291	2-C521	EE703233	3-36	ET741887	2-TR501	SS703231	3-30	ZG703382	1-59
EC703291	2-C615	EE703265	2-VC101to104	ET741887	2-TR601	TA703308	3-14	ZG703385	1-62
EC703291	2-C621	EF702644	2-F801	ET741902	2-TR104	TK703220	3-20	ZG703388	1-66
EC703296	2-C212	EI702666	2-IC201	ET741902	2-TR502	TK703221	3-21	ZG703395	1-73
EC703296	2-C312	EI702675	2-IC201	ET741902	2-TR602	TK703222	3-22	ZG703652	3-44
EC703296	2-C514	EI702675	2-IC301	ET741902	2-TR701,702	TK703223	3-23	ZG703654	3-27
EC703296	2-C614	EI703241	2-IC701	EV703275	2-VR502	TK703239	3-12	ZS462194	3-29
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EC703322	2-C124	EI703253	2-IC401	EV703279	2-FVR401,402	TK703244	3-45	ZW703378	1-54
EC703323	2-C400	EI742266	2-CR201	EV703298	2-SVR201	TK703249	3-46x	ZW703381	1-58
EC703323	2-C414	EI742267	2-CR202	EV703299	2-SVR202	TK703280	2-CM201	ZW703386	1-64
EC703324	2-C415	EJ702640	3-8x	EV703311	2-FVR701	TK703280	2-CM301	ZW703387	1-65
EC703325	2-C120	EJ703250	3-57	EV703321	2-VR501	TK703302	3-35	ZW703391	1-69
EC703327	2-C231	EJ703287	3-7x	EV703399	2-VR201	TK703305	3-41		
EC703328	3-31x	EJ703288	3-6	EW702646	3-58x	TK703312	3-47		
EC703348	2-C234	EJ703289	3-9x	EW702647	3-60x	TK703313	3-48		
EC703396	2-C205	EJ703408	2-5	EW702648	3-62x	TK703346	1-24		
EC703396	2-C305	EJ741975	2-4	EW702650	3-59x	TK703384	1-61		
EC703396	2-C507	EJ742263	2-J501	EW703251	3-61x	TK703394	1-72		
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EC703400	2-C114	EL703309	3-16	HP703342	1-18	TK703405	3-17		
EC703400	2-C127	EO702670	2-L111	MB703339	1-13	TK703406	2-L106to108		
EC703400	2-C137	EO703261	2-L104	MB703362	1-39	TK703407	2-L106to108		
EC703400	2-C201	EO703262	2-L103	MB703379	1-56	TK703410	1-63		
EC703400	2-C206	EO703262	2-L112	MC703360	1-38	TK703411	1-55		
EC703400	2-C214	EO703262	2-L501	ML702599	1-26	TK703414	1-15		
EC703400	2-C301	EO703263	2-L110	ML703226	3-25	TK703417	1-22		
EC703400	2-C306	EO703264	2-L109	ML703303	3-32	TK703418	1-23		
EC703400	2-C314	EO703266	2-L109	ML703334	1-6	TK703419	1-9		
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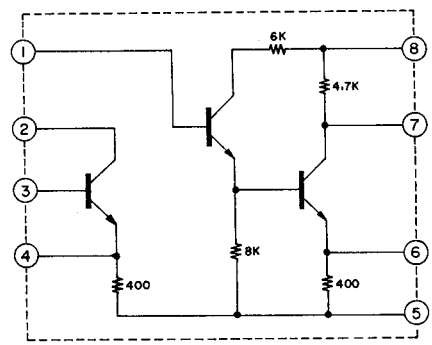
SECTION 3

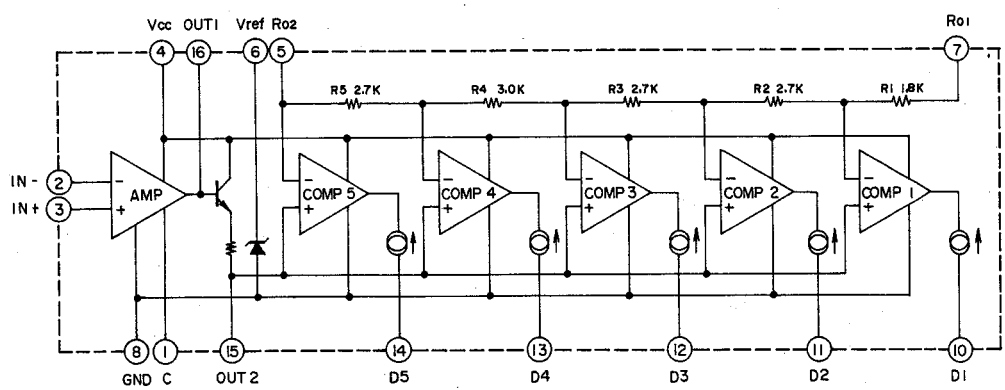
SCHEMATIC DIAGRAM

1. AJ-490FS NO. 3-1 1581408A SCHEMATIC DIAGRAM
2. AJ-490FL NO. 3-2 1581409A SCHEMATIC DIAGRAM
3. AJ-490FS/FL NO. 3-3 1581410A SCHEMATIC DIAGRAM

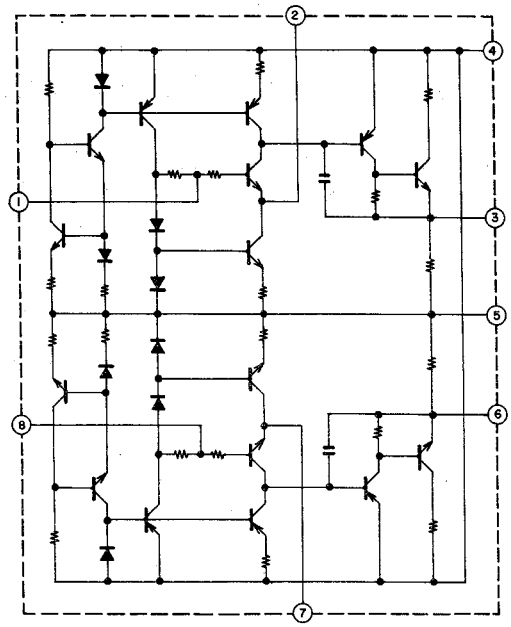
LA3210B



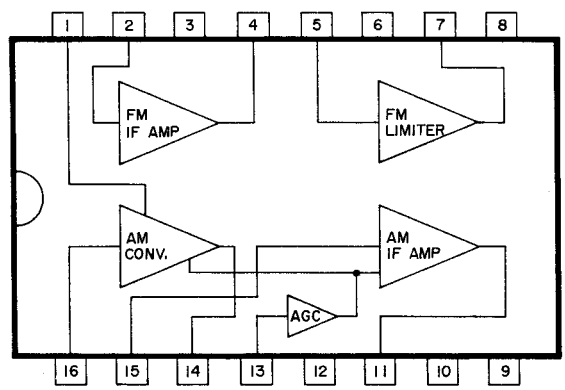
LB1405



μPC1186H



AN7218



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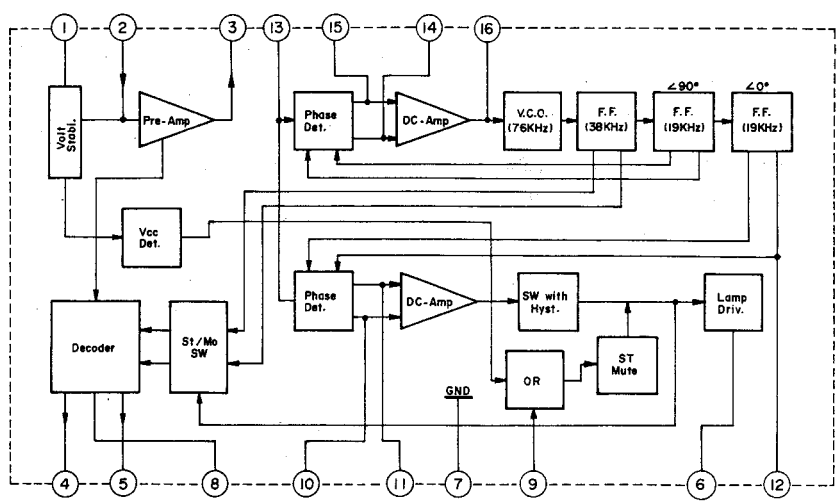
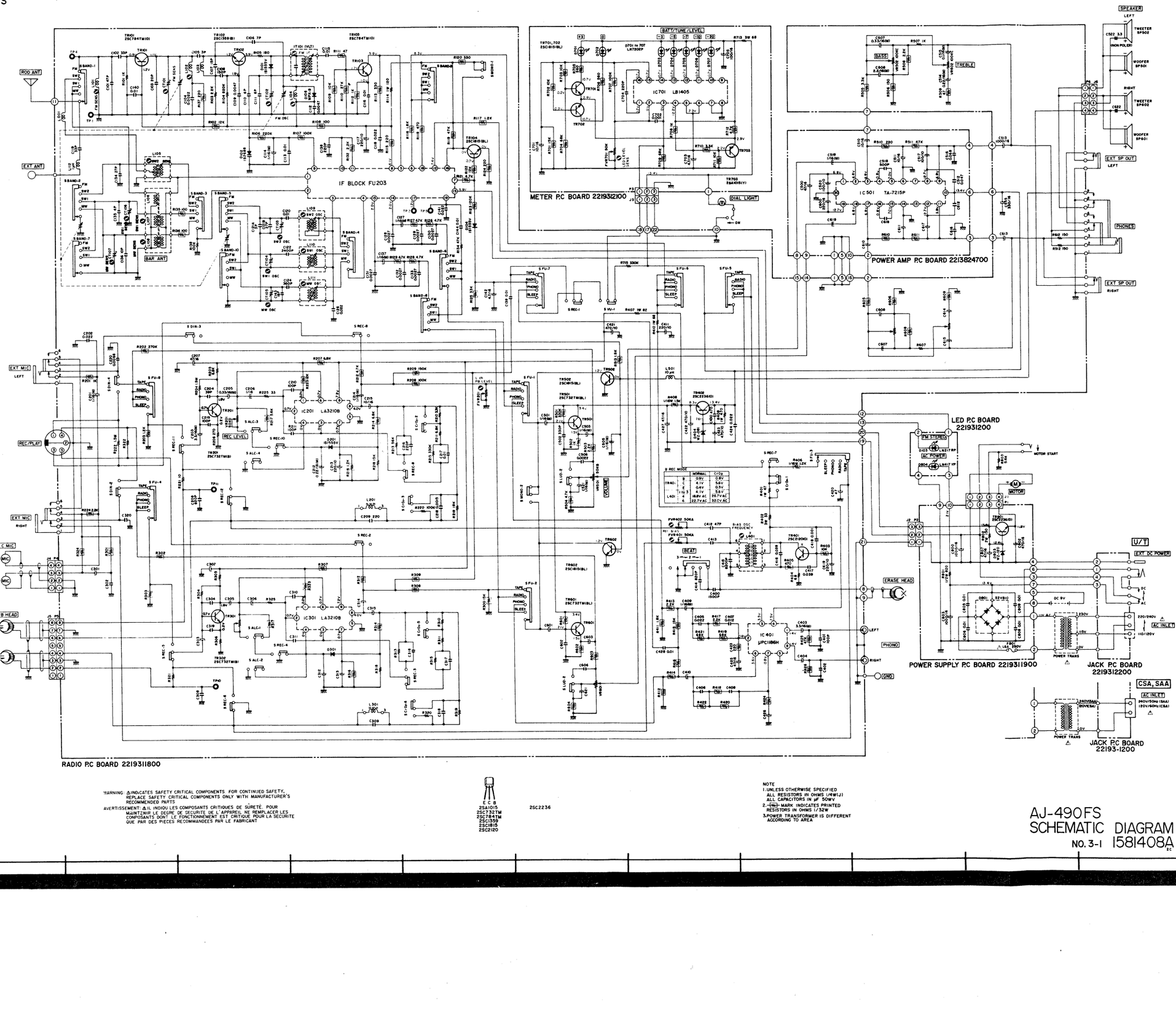


AJ-490FS



WARNING: △INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS
AVERTISSEMENT: △IL INDIQU LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRÉ DE SECURITE DE L'APPAREIL NE REMPLACER LES CONPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT

E C B
2SA1015
2SC1327M
2SC1841M
2SC1359
2SC1815
2SC2120

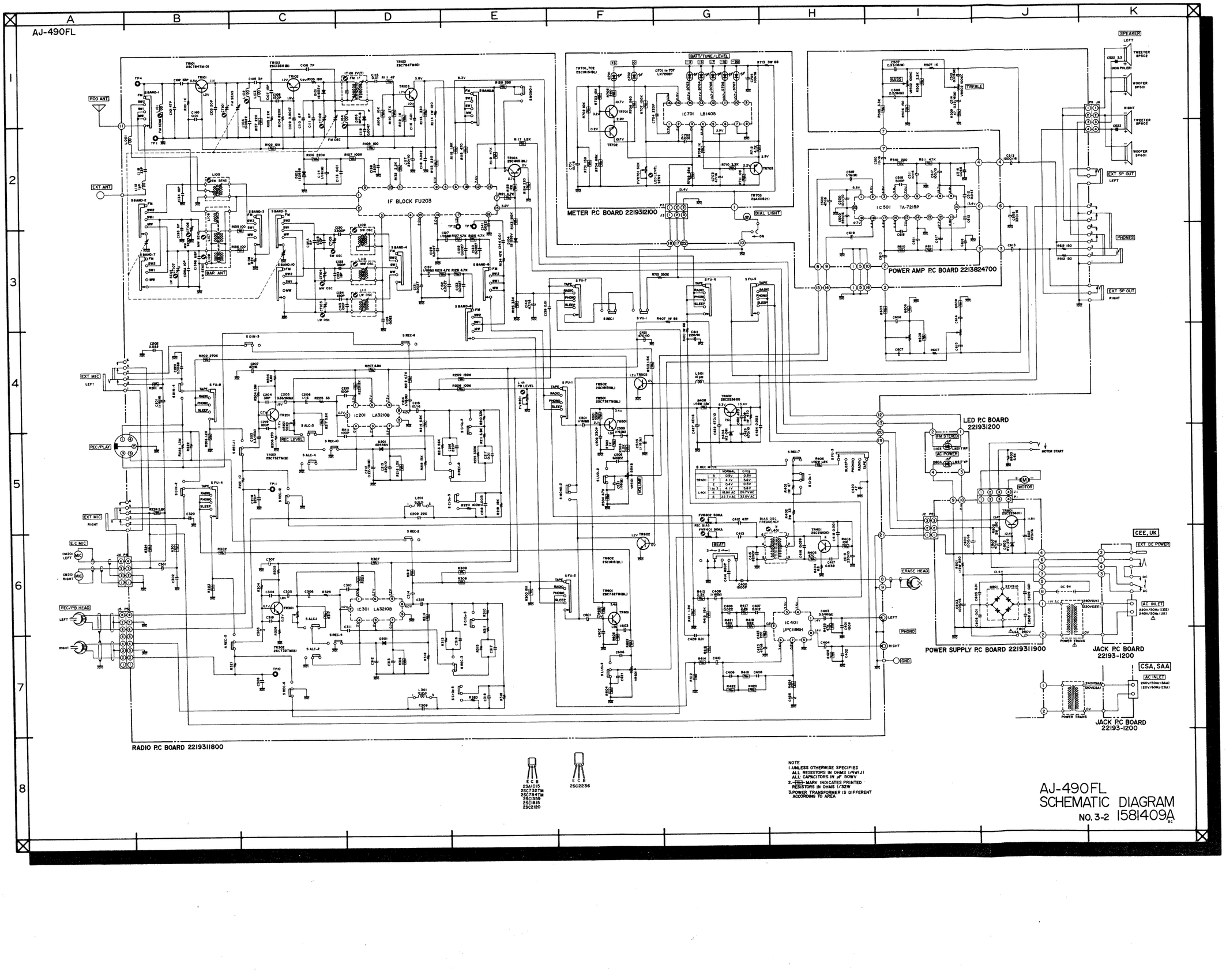
2SC2236

NOTE
1. UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS (1/4W)(J)
ALL CAPACITORS IN μF 50WV
2. ⊣⊢ MARK INDICATES PRINTED RESISTORS IN OHMS 1/32W
3. POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

AJ-490FS SCHEMATIC DIAGRAM

NO. 3-1 1581408A 2C

AJ-490FL

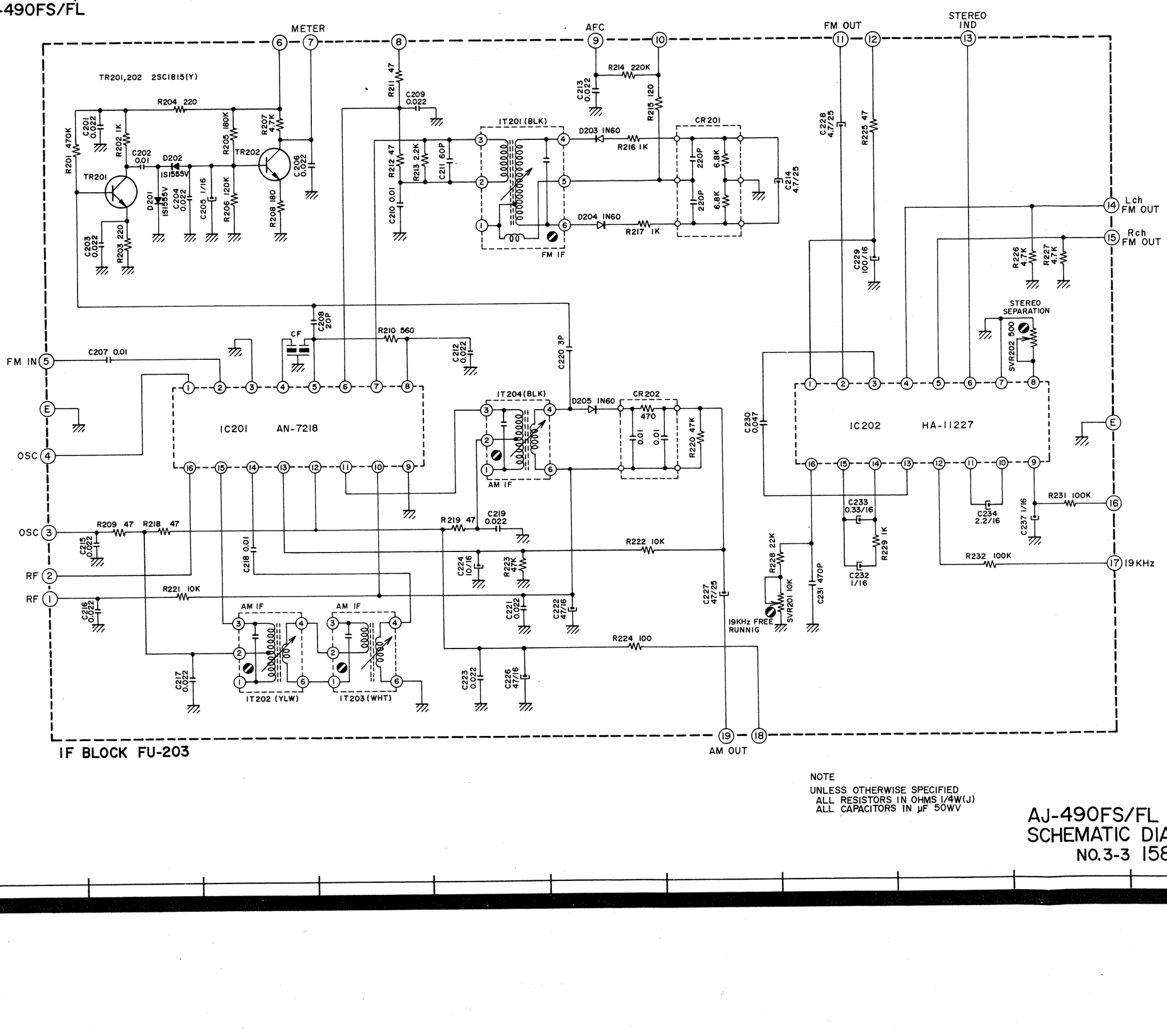


NOTE
1. UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS (1/4W(J))
ALL CAPACITORS IN μF 50WV
2. -[S]- MARK INDICATES PRINTED RESISTORS IN OHMS 1/32W
3. POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

AJ-490FL SCHEMATIC DIAGRAM

NO. 3-2 1581409A

AJ-490FS/FL



NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV

AJ-490FS/FL IF
SCHEMATIC DIAGRAM
NO.3-3 1581410A 2C